



ISSUES PAPER

Import Risk Analysis (IRA) for the Importation of Fresh Pineapple Fruit



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Foreword

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GLOSSARY OF TERMS AND ABBREVIATIONS

AFFA	Agriculture, Fisheries and Forestry - Australia
ALOP	appropriate level of protection
AQIS	Australian Quarantine and Inspection Service
Area	an officially defined country, part of a country or all or parts of several countries
Biosecurity Australia	a major operating group within the Commonwealth Department of Agriculture, Fisheries and Forestry - Australia. Biosecurity Australia protects consumers and animal and plant health, and facilitates trade, by providing sound scientifically based and cost effective quarantine policy
Control (of a pest)	suppression, containment or eradication of a pest population
Endangered area	an area where ecological factors favour the establishment of a pest whose presence in the area will result in economically important loss
Entry (of a pest)	movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled
Entry potential	likelihood of the entry of a pest
Establishment potential	likelihood of the establishment of a pest
Establishment	the perpetuation, for the foreseeable future, of a pest within an area after entry
FAO	Food and Agriculture Organization of the United Nations
Fresh	not dried, deep-frozen or otherwise conserved
ICA	Interstate Certification Assurance
ICON	AQIS Import Conditions database
Introduction potential	likelihood of the introduction of a pest
Introduction	entry of a pest resulting in its establishment
IPPC	International Plant Protection Convention, as deposited in 1951 with FAO in Rome and as subsequently amended
IRA	import risk analysis
ISPM	International Standard on Phytosanitary Measures
National Plant Protection	
Organisation	official service established by a government to discharge the functions specified by the IPPC
Non-quarantine pest	pest that is not a quarantine pest for an area

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Official	established, authorised or performed by a National Plant Protection Organization
Official control (of a regulated pest)	the active enforcement of mandatory phytosanitary regulations and the application of mandatory phytosanitary procedures with the objective of eradication or containment of quarantine pests or for the management of regulated non-quarantine pests
PBPM	Plant Biosecurity Policy Memorandum
Pest	any species, strain or biotype of plant, animal, or pathogenic agent, injurious to plants or plant products
Pest categorisation	the process for determining whether a pest has or has not the characteristics of a quarantine pest or those of a regulated non-quarantine pest
Pest free area	an area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained
Pest risk analysis	the process of evaluating biological or other scientific evidence to determine whether a pest should be regulated and the strength of any phytosanitary measures to be taken against it
Pest risk assessment	determination of whether a pest is a quarantine pest and evaluation of its introduction potential
Pest risk assessment (for quarantine pests)	evaluation of the probability of the introduction and spread of a pest and of the associated potential economic consequences
Pest risk management	the decision-making process of reducing the risk of introduction of a quarantine pest
Pest risk management (for quarantine pests)	evaluation and selection of options to reduce the risk of introduction and spread of a pest
Phytosanitary measure	any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests
Phytosanitary regulation	official rule to prevent the introduction and/or spread of quarantine pests, by regulating the production, movement or existence of commodities or other articles, or the normal activity of persons, and by establishing schemes for phytosanitary certification
PRA	pest risk analysis
PRA area	area in relation to which a pest risk analysis is conducted
QP	Quarantine Proclamation

Quarantine pest	a pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled
Regulated non-quarantine pest	a non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party
SCU	Specific Commodity Understanding
Spread potential	likelihood of the spread of a pest
Spread	expansion of the geographical distribution of a pest within an area
SPS	Sanitary and Phytosanitary
SPS Agreement	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
WTO	World Trade Organization

The Commonwealth Department of Agriculture, Fisheries and Forestry - Australia (AFFA) is considering the importation of fresh pineapple fruit from all countries, with specific emphasis on those countries that have lodged market access requests. The Import Risk Analysis (IRA) is to be conducted using the routine pathway outlined in *The AQIS Import Risk Analysis Process Handbook* (the Handbook) (AQIS, 1998).

This Issues Paper contains the following sections:

1. Biosecurity Australia's framework for quarantine policy and for import risk analysis (IRA) and the international framework for trade in animal- and plant-derived products.
2. Pest Risk Analysis (PRA) methodology
3. Background to this IRA
4. Current quarantine policy for importation of fresh pineapples
5. Results of pest categorisation
6. The consideration of issues raised by stakeholders at the stakeholder workshop (held on 3 April, 2001 in Brisbane)
7. An outline of further steps in the IRA process.

The introductory sections provide important information that is fundamental to understanding the national and international framework for considering import applications from other countries. Information specific to the pineapple industry is covered in the final section entitled "Importation of Pineapples".

This Issues Paper precedes publication of a draft and subsequently a final IRA document. The draft IRA document will contain the methods for, and results of, risk assessment and risk management and provide a preliminary position on the importation of fresh pineapples. The final IRA will include the same elements with any necessary revisions, and also a description of quarantine conditions for fresh pineapples.

In preparing this Issues Paper, Biosecurity Australia held an initial meeting with stakeholders to discuss the IRA process, a preliminary pest list and pest categorisation. Several issues were raised by stakeholders at the meeting, including the status of particular pests (including strains of some pests) and the risks associated with soil and with weed seeds. Biosecurity Australia has investigated these issues and provides the necessary information in this Issues Paper. Biosecurity Australia will continue to consult and meet with stakeholders and relevant experts as necessary during the next stage of the IRA process, whilst the Draft IRA paper is being prepared.

To date, Biosecurity Australia has identified a total of 520 pests of pineapple. These pests include arthropods, gastropods, nematodes, fungi, bacteria, viruses and weeds. Of these 520 pests, 259 are present in Australia and do not need to be considered further in the IRA. Of the remaining 294 pests which are not present in Australia (or present but under official control, or classified as a different strain), 175 are found on the import pathway (fruit-crown). These pests will need to be considered further in the IRA. The next stage will involve determinations of whether the pests are of economic significance and whether they have the potential to establish and spread in Australia. This part of the risk assessment will be covered in the Draft IRA. The Draft IRA will also consider risk management measures to achieve Australia's appropriate level of protection (ALOP).

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The Draft IRA paper will cover technical issues related to pest risk assessment and pest risk management, and will indicate a preliminary view on which risk management measures will achieve Australia's ALOP. Stakeholders are strongly encouraged to contribute to the IRA by providing relevant technical information and raising issues as early as possible, preferably while commenting on the Issues Paper or during meetings with Biosecurity Australia.

After considering all technical issues, including stakeholder comments on the Draft IRA paper, Biosecurity Australia will finalise the IRA recommendations consistent with Australia's highly conservative ALOP and international rights and obligations under the SPS Agreement.

Biosecurity Australia will submit its recommendations to the Director of Animal and Plant Quarantine (the Director) for consideration. The Director will consider the recommendations and make the final determination. The Director's determination and the Final IRA paper will be sent to all stakeholders. Any stakeholder of the opinion that the process outlined in the Handbook has not been properly followed, including that the analysis failed to consider a significant body of relevant scientific or technical information, may appeal to the Director. If the appeal is upheld, Biosecurity Australia will rectify the deficiency. If the appeal is rejected, the policy will be adopted.

BIOSECURITY IN AUSTRALIA

Legislative framework

AFFA's objective is to adopt biosecurity policies that provide the health safeguards required by government policy in the least trade-restrictive way and that are, where appropriate, based on international standards. In developing and reviewing quarantine policies, disease risks associated with importations are analysed using import risk analysis - a structured, transparent and science-based process.

The *Quarantine Act* and its subordinate legislation, including the quarantine *Proclamation 1998* (QP 1998), are the legislative basis of human, animal and plant quarantine in Australia. The *Quarantine Amendment Act 1999*, which commenced in June/July 2000, is a major revision to the *Quarantine Act* to implement, *inter alia*, changes recommended in the report of the Australian Quarantine Review Committee (the AQRC).

Section 4 of the *Quarantine Act* defines the scope of quarantine as follows:

In this Act, quarantine includes, but is not limited to, measures:

- *for, or in relation to, the examination, exclusion, detention, observation, segregation, isolation, protection, treatment and regulation of vessels, installations, human beings, animals, plants or other goods or things*
- *having as their object the prevention or control of the introduction, establishment or spread of diseases or pests that will or could cause significant damage to human beings, animals, plants, other aspects of the environment or economic activities*

Quarantine Risk

The concept of level of quarantine risk has been introduced as the basis of quarantine decision-making. When making decisions under the *Quarantine Act*, decision-makers must have regard to the level of quarantine risk and must take prescribed actions to manage the risk if it is unacceptably high. For example, Section 44C concerning the examination of goods on importation requires a quarantine officer to order the goods into quarantine if the officer is of the opinion that the level of quarantine risk is unacceptably high. Section 46A concerning approvals for the purpose of goods ordered into quarantine requires consideration of the level of quarantine risk, with regard to a number of matters including the proposed procedures and the construction and management of the premises, before approval may be given to a premises. Section 5D of the *Quarantine Act* includes harm to the environment as a component of the level of quarantine risk:

Section 5D: level of quarantine risk

A reference in this Act to a level of quarantine risk is a reference to:

- (a) *the probability of:*

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- (i) *a disease or pest being introduced, established or spread in Australia or the Cocos Islands; and*
 - (ii) *the disease or pest causing harm to human beings, animals, plants, other aspects of the environment, or economic activities; and*
- (b) *the probable extent of the harm.*

Quarantine Proclamation

Subsection 13(1) of the *Quarantine Act* provides, among other things, that the Governor-General in Executive Council may, by proclamation, prohibit the importation into Australia of any articles or things likely to introduce, establish or spread any disease or pest affecting persons, animals or plants. The Governor-General may apply this power of prohibition generally or subject to any specified conditions or restrictions.

QP 1998 is the principal legal instrument used to control of the importation into Australia of goods of quarantine interest. A wide range of goods is specified in the *QP 1998* including animals, plants, animal and plant products, micro-organisms, and certain other goods which carry a high risk if uncontrolled importation is allowed, eg soil, water, vaccines, feeds.

For articles or things prohibited by proclamation, the Director of Animal and Plant Quarantine may permit entry of products on an unrestricted basis or subject to compliance with conditions, which are normally specified on a permit. An IRA provides the scientific and technical basis for biosecurity policies that determine whether an import may be permitted and, if so, the conditions to be applied.

The matters to be considered when deciding whether to issue a permit are set out in Section 70 of *QP 1998* as follows:

- 70 *Things a Director of Quarantine must take into account when deciding whether to grant a permit for importation into Australia*
- (1) *In deciding whether to grant a permit to import a thing into Australia or the Cocos Islands, or for the removal of a thing from the Protected Zone or the Torres Strait Special Quarantine Zone to the rest of Australia, a Director of Quarantine:*
 - (a) *must consider the level of quarantine risk if the permit were granted; and*
 - (b) *must consider whether, if the permit were granted, the imposition of conditions on it would be necessary to limit the level of quarantine risk to one that is acceptably low; and*
 - (c) *may take into account anything else that he or she knows that is relevant.*

The matters include the level of quarantine risk (see above), whether the imposition of conditions would be necessary to limit the quarantine risk to a level that would be acceptably low, and anything else known to the decision maker to be relevant.

Environment

Recent amendments to the *Quarantine Act* make explicit the responsibility of quarantine officers to consider impact on the environment when making decisions under the *Quarantine Act*. The scope of quarantine (Section 4) has been amended to include the environment, and the level of quarantine

risk (Section 5D) also incorporates the environment. As shown below, environment has been broadly defined in Section 5 of the *Quarantine Act* to incorporate all aspects surrounding humans, whether natural or built:

Environment includes all aspects of the surroundings of human beings, whether natural surroundings or surroundings created by human beings themselves, and whether affecting them as individuals or in social groupings.

When undertaking an IRA, the risk of harm to the environment must be fully considered to ensure that the quarantine policies developed reflect the Australian Government's approach to quarantine risk management and protection of the environment.

The *Quarantine Act*, Part IIA, requires the Director of Quarantine to refer certain decisions to the Environment Minister. Part IIA only applies to decisions made by the Director of Quarantine and decisions made using his/her delegation. Before making a decision under the *Quarantine Act*, the implementation of which is likely to result in a significant risk of harm to the environment, the Director of Quarantine must seek the views of the Environment Minister regarding the risk assessment process to be followed and subsequently the preliminary results of the risk assessment. The Director of Quarantine must take the advice of the Environment Minister into account and inform the Environment Minister of how his advice was taken into account. Part IIA also clarifies arrangements between quarantine decision-making and environment protection legislation, in particular the *Environment Protection and Biodiversity Conservation Act 1999*.

Part IIA—Proposed decisions affecting the environment

11A Definitions

In this Part:

Environment Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999*.

11B Decisions under this Act not to be regarded as actions for the purposes of the Environment Protection and Biodiversity Conservation Act

To avoid doubt, a decision to do, or not to do, anything under this Act is taken to be a decision to grant a governmental authorisation for the purposes of subsection 524(2) of the Environment Protection and Biodiversity Conservation Act 1999.

11C Requirement to seek from Environment Minister advice about proposed decision involving significant risk of environmental harm

- (1) Before making a decision under this Act, the implementation of which is likely to result in a significant risk of harm to the environment, a Director of Quarantine must comply with the requirements of this section.***
- (2) The Director of Quarantine must give written notice to the Environment Minister:***
 - (a) stating that consideration is to be given to the making of such a decision; and***
 - (b) requesting the Environment Minister to give advice to the Director as to the adequacy of the risk assessment process that is proposed to be followed in assessing the risk of harm to the environment.***

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- (3) *After preliminary findings have been made as a result of the risk assessment process, the Director of Quarantine must give written notice to the Environment Minister requesting the Environment Minister to give advice to the Director as to the adequacy of the preliminary findings in relation to the protection of the environment.*

11D Provision of advice by Environment Minister

- (1) *If a Director of Quarantine gives to the Environment Minister a notice in accordance with section 11C requesting advice as to a matter, the Environment Minister may give written advice to the Director about that matter.*
- (2) *Any such advice is to be given within 28 days after the notice was given.*

11E Director of Quarantine to take advice into account

If the Director of Quarantine receives any advice from the Environment Minister within 28 days after the notice requesting the advice was given to the Environment Minister in accordance with section 11C, the Director must:

- (a) *ensure that the advice is taken into account in making the relevant decision; and*
- (b) *inform the Environment Minister in writing as to how the advice was taken into account.*

Import risk analyses are not decisions under the *Quarantine Act* in this context. IRA is an administrative process used by AFFA to make quarantine policy determinations. The risk assessments referred to in Part IIA are those undertaken when making decisions under the *Quarantine Act*, such as when an assessment is made of the level of quarantine risk and its acceptability. The Director of Quarantine's power to refer matters to the Environment Minister has been delegated to the Executive Director of AQIS and the Executive Managers of AQIS Operations and Market Access and Biosecurity. Routinely, EA is given the opportunity to comment on all proposals to develop new biosecurity policies.

Policy framework

The primary purpose of quarantine is to facilitate the movement of goods and people into Australia while protecting Australia from the entry, establishment and spread of unwanted pests and diseases which could damage our way of life, agriculture and the environment. Such pests and diseases may threaten human health, damage crops, livestock and ecosystems, reduce productivity, require expensive control measures and affect the market's acceptance of affected or related commodities.

Successive Australian Governments have maintained a highly conservative but not a zero-risk approach to the management of quarantine risks, evident in the strictness of all quarantine related activities, including policies with regard to imported commodities, procedures at the border and operations against incursions of pests and diseases.

Recent inquiries into Australia's quarantine regime have recognised that it is impossible in practice to operate a zero-risk quarantine regime. In 1979, the Senate Standing Committee on Natural Resources stressed that there is no such thing as a zero risk quarantine policy, which it believed should be better described as "... scientific evaluation of acceptable risk ...". In 1988, the Lindsay Review of Australian quarantine concluded that "... a no risk policy is untenable and undesirable and should be formally rejected ...". In 1996, the Senate Rural and Regional Affairs and Transport

Committee was of the view that a zero risk approach was unrealistic and untenable, and that its currency only demonstrated that the concepts of risk assessment or risk management were widely misunderstood. These themes were repeated in the 1996 report of the AQRC, chaired by Professor Nairn. In the Government's 1997 response to the report, the Government confirmed a managed risk approach. Australia will continue to be very averse to accepting quarantine risks. Products will only be permitted entry if any risks can be reduced to very low levels which can be managed with confidence.

Import risk analysis provides the basis for consideration of import applications for the importation of animals and animal-derived products, and plants and plant-derived products. In keeping with the scope of the *Quarantine Act* and Australia's international obligations, only factors relevant to the evaluation of quarantine risk (ie the risk associated with the entry, establishment and spread of unwanted pests and diseases) are considered in the IRA. The potential competitive economic impact of prospective imports is not within the scope of the IRA process, and any discussion on industry support mechanisms would need to remain quite separate from the technical IRA process.

The WTO and import risk analysis

The *SPS Agreement* applies to measures designed to protect human, animal and plant life and health from certain things, or a country from pests, which may directly or indirectly affect international trade, and reaffirms the right, subject to conditions, of WTO Member countries to have such measures in place. Sanitary (human and animal health) and phytosanitary (plant health) measures apply to trade in or movement of animal and plant based products produced within a country, as well as to products imported from or exported to other countries.

For the purposes of the *SPS Agreement*, SPS measures are defined as any measures applied:

- to protect human or animal life or health from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or foodstuffs
- to protect human life or health from risks arising from diseases carried by animals, plants and their products, or from the entry, establishment or spread of pests
- to protect animal or plant life from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms
- to prevent or limit other damage to a country from the entry, establishment or spread of pests

The key provisions of the *SPS Agreement* are:

- The purpose of an SPS measure may only be to protect human or animal life or health from the things listed above, or a country from pests, and then only to the extent necessary to achieve the importing country's required level of protection
- An SPS measure must be based on scientific principles and not be maintained without sufficient evidence
- An SPS measure may not be applied in a way which arbitrarily or unjustifiably discriminates between countries where identical or similar conditions exist; this includes between conditions within the country imposing the measure and other countries (this is the concept of national treatment)
- An importing country has the sovereign right to choose the level of protection it deems appropriate (its appropriate level of protection or ALOP - see later in this chapter) to protect human or animal life or health within its territory, but such a level of protection must be consistently applied in different situations

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- An SPS measure should be based on an international standard, guideline or recommendation, where these exist, except to the extent that there is scientific justification for a more stringent measure which is necessary to achieve a member country's ALOP
- An SPS measure conforming to an international standard, guideline or recommendation is presumed to be consistent with the Agreement
- Where an international standard, guideline or recommendation does not exist or where, in order to meet a member country's ALOP, a measure needs to provide a higher level of protection than accorded by the relevant international standard, such a measure must be based on a risk assessment; the risk assessment must take into account available scientific evidence and relevant economic factors
- A measure should be chosen to achieve the ALOP in the least trade restrictive manner
- When there is insufficient scientific evidence to complete a risk assessment, an importing country may adopt a provisional measure(s) by taking into account available pertinent information; additional information must be sought to allow a more objective decision and the measure(s) reviewed within a reasonable period of time
- Concepts of pest- or disease- free areas or areas of low pest or disease prevalence (regionalisation) and equivalence of measures between member countries should be utilised.

The rights and obligations in the *SPS Agreement* must be read as a whole. The articles must be interpreted in the light of each other as they inform each other's interpretation - that is, the articles do not stand alone.

The following provisions are discussed in greater detail:

- Use of international standards
- Equivalence
- Risk assessment
- The appropriate level of protection
- Consistency in risk management.

Use of international standards

An SPS measure can be justified in two ways.

The first, and that encouraged by the WTO, is for the importing country to base its measures on international standards, guidelines and recommendations developed by the "*relevant scientific organisations*". The international organisations recognised as responsible for establishing these international standards, guidelines and recommendations are:

- For animal health and zoonoses, the Office International des Epizooties (OIE)
- For food safety, the joint Food and Agriculture Organization (FAO) / World Health Organization (WHO) Codex Alimentarius Commission
- For plant health, the relevant international and regional organisations operating within the framework of the FAO / International Plant Protection Convention (IPPC)

The second is where an international standard does not exist, or where a member country has decided that a higher level of protection than that provided by the international standard is appropriate. In these circumstances, the importing country must be able to show that its measure is based on a scientific assessment of the risks.

To support the carrying out of import risk analyses that are science-based, objective, defensible and transparent, the IPPC standards (International Standards for Phytosanitary Measures, ISPM) contain a standardised sequence of tasks or procedures. Collectively, these procedures comprise the respective 'international standards' for the conduct of import risk analyses for plants and their products.

Australia is a contracting party to the IPPC and actively contributes to the development of ISPM. Of particular relevance to the present IRA are the following:

- ISPM No. 1: *Principles of Plant Quarantine as Related to International Trade* (FAO, 1995);
- ISPM No. 2: *Guidelines for Pest Risk Analysis* (FAO, 1996);
- ISPM No. 5: *Glossary of Phytosanitary Terms* (FAO, 1997);
- ISPM No. 10: *Requirements for the Establishment of Pest Free Places of Production and Pest Free Production Sites* (FAO, 1999); and
- ISPM No. 11: *Pest Risk Analysis for Quarantine Pests* (FAO, 2001).

Equivalence

Article 4 of the *SPS Agreement* states that:

Members shall accept the sanitary or phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection.

Members must accept the SPS measures of other Members as equivalent to their own if the latter can demonstrate objectively that their measures provide the level of protection required by the importing country. Often there are a number of alternative measures that may either singly or in combination achieve the ALOP, (for example, treatment, quarantine or increased inspection). In choosing among such alternatives, a Member should put in place measures that are no more trade-restrictive than required to achieve its health protection objectives, provided those measures are technically and economically feasible. In doing so, the importing country must remain open to approaches from exporting countries with regard to alternative measures that may meet its ALOP.

Risk assessment

Articles 5.1 to 5.3 of the *SPS Agreement* outline the requirements that Members should follow when carrying out an import risk assessment.

Article 5.1 provides a basic statement of the obligation:

Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organisations

Annex A of the *SPS Agreement* contains two definitions of risk assessment; the following is the definition applicable to biosecurity assessments:

The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary

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measures which might be applied, and of the associated potential biological and economic consequences

On the basis of this definition, the Appellate Body examining Australia's appeal against the dispute settlement panel's finding on Australia's prohibition of imports of Canadian salmon considered that a risk assessment within the meaning of Article 5.1 must:

- Identify the hazards whose entry, establishment or spread within its territory a Member wants to prevent, as well as the associated potential biological and economic consequences;
- Evaluate the likelihood of entry, establishment or spread of these hazards, as well as the associated potential biological and economic consequences; and
- Evaluate the likelihood of entry, establishment or spread of these hazards according to the SPS measures that might be applied; measures which might be applied are those which reduce the risks to the appropriate level, with the aim of being least trade restrictive.

The Appellate Body believed that, for a risk assessment to fall within the meaning of Article 5.1 and the first definition in paragraph 4 of Annex A of the Agreement, it is not sufficient that it conclude that there is a 'possibility' of entry, establishment or spread of diseases and their associated biological and economic consequences. That is, an assessment must evaluate the 'likelihood' (the 'probability') of entry, establishment or spread of diseases and their associated biological and economic consequences. Furthermore, likelihood should be evaluated without and then with any SPS measures that might be required.

Article 5.2 outlines factors that should be considered when assessing the risks associated with a proposed importation. Specifically, it states that:

In the assessment of risks Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological or environmental conditions; and quarantine or other treatment

This paragraph emphasises the need to consider a wide range of factors in both the importing and exporting country.

Article 5.3 describes the need to include a consequence assessment in a risk assessment, and lists dimensions that should be considered when assessing 'potential damage' arising from a disease or pest incursion. Specifically, it states that:

Members shall take into account as relevant economic factors; the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the cost of control or eradication in the territory of the importing Member

This list of 'relevant economic factors' may be viewed as the bare minimum that must be considered if an analysis is to be compliant with the terms of the *SPS Agreement*. In addition, both the *OIE Code* and *IPPC* standards for risk analysis have outlined factors that should be considered when assessing consequences. These two standards also stress the need to consider the 'likely magnitude' of consequences - that is, to base an assessment of consequences on the likelihood of various levels of damage in the importing country. Finally, Article 5.3 states that Members should consider "... the relative cost-effectiveness of alternative approaches to limiting risks ...". This is an issue that should be explored during risk management. Among factors that may not be taken into account are those relating to import competition.

The environmental and ecological consequences of pest or disease introduction are legitimate considerations in a risk assessment. The SPS Agreement provides a basic right to take measures to protect animal or plant life or health (Article 2). In Annex A, 'animal' is defined to include fish and wild fauna; and 'plant' to include forests and wild flora.

Additional to the economic factors identified in Article 5.3, the definition of risk assessment in Annex A, paragraph 4 ("... *evaluation of the likelihood of entry, establishment or spread of a pest or disease ... and of the associated potential biological and economic consequences ...*") provides for general consideration of the biological consequences, including to the environment. The environment is included in paragraph 1(d), which states that an SPS measure is one that is applied to "... *prevent or limit other damage to a country from the entry, establishment or spread of pests ...*".

Article 5.7 provides for the use of precaution when information is insufficient. This paragraph states that:

In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time

Members, in adopting provisional measures, must demonstrate that there is insufficient information for an objective assessment of the risk. The provisional measures must be based on available information including international standards and the approaches of other countries. Countries adopting provisional measures have the obligation to identify the additional information that is required for a more objective assessment and to seek that information in a timely manner. The provisional measure must be reviewed within a reasonable period as such measures are assumed to be trade limiting and contrary to the interests of the WTO agreements.

Appropriate level of protection

The SPS Agreement defines "*appropriate level of sanitary or phytosanitary protection*" as the level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory. The SPS Agreement notes that many Members also refer to this concept as the "*acceptable level of risk*". In setting their ALOP, WTO Members are to take into account the objective of minimising negative trade effects (Article 5.4).

Determination of Australia's ALOP is an issue for government in consultation with the community - it is not a prerogative of the WTO. The ALOP reflects government policy which is informed by community expectations; it is a societal value judgement to which AFFA contributes by providing technical information and advice. It is important to note that the SPS Agreement does not require a Member to have a scientific basis for its ALOP determination.

ALOP can be illustrated using a *risk estimation matrix* (Table 1). The cells of this matrix describe the product of likelihood and consequences - termed 'risk'.

When interpreting the risk estimation matrix it should be remembered that although the descriptors for each axis are similar ('low', 'moderate', 'high', etc), the vertical axis refers to likelihood and the horizontal axis refers to consequences.

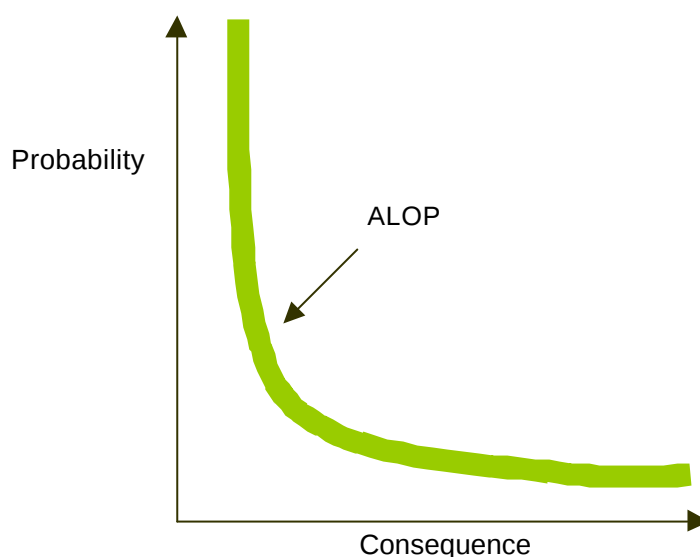
One implication of this is that a 'negligible' probability combined with 'extreme' consequences, is not the same as an 'extreme' probability combined with 'negligible' consequences - that is, that the matrix is not symmetrical. Another implication is that 'risk' is expressed in the same units as are used to estimate consequences – that is, risk is not a likelihood.

Table 1 Risk estimation matrix

Likelihood of entry, establishment and spread	<u>High</u>	Negligible	Very low	Low	Moderate	High	Extreme
	<u>Moderate</u>	Negligible	Very low	Low	Moderate	High	Extreme
	<u>Low</u>	Negligible	Negligible	Very low	Low	Moderate	High
	<u>V. Low</u>	Negligible	Negligible	Negligible	Very low	Low	Moderate
	<u>E. Low</u>	Negligible	Negligible	Negligible	Negligible	Very low	Low
	<u>Negligible</u>	Negligible	Negligible	Negligible	Negligible	Negligible	Very low
		<u>Negligible</u>	<u>Very low</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>	<u>Extreme</u>
Consequences of entry, establishment and spread							

The band of cells in Table 1 marked 'very low' represents Australia's ALOP, or tolerance of loss. This band of cells represents an approximation of a continuous 'iso-risk curve' - a curve that will be asymptotic at the minimum level of consequences considered to be 'acceptable' (which, in Australia's case, is 'very low') and at a likelihood that tends toward zero. The principle of an iso-risk curve is illustrated in Figure 1.

Figure 1 Theoretical iso-risk curve



Consistency in risk management

Article 5.5 states:

With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade

Members have the obligation to avoid arbitrary or unjustifiable distinctions in the levels of protection applied in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. This obligation reflects the objective of consistency in applying the concept of ALOP against risks to human, animal and plant life or health, - that is, consistency in risk management. In other words, it is not open to a Member to arbitrarily vary its attitude to the acceptance of risk from one situation to another.

Consistency is achieved through use of the risk estimation matrix (Table 1).

OVERVIEW OF THE IPPC APPROACH TO PEST RISK ANALYSIS

The technical component of an IRA for plants or plant products is termed a ‘pest risk analysis’, or PRA. In accordance with the ISPM *Pest Risk Analysis for Quarantine Pests*¹, a PRA comprises three discrete stages:

1. Initiation of the pest risk analysis
2. Risk assessment
3. Risk management.

The *initiation* of a risk analysis involves the identification of the pest(s) and pathways of concern that should be considered for analysis. *Risk assessment* comprises pest categorisation, assessment of the probability of introduction and spread, and assessment of the potential economic consequences (including environmental impacts). *Risk management* describes the evaluation and selection of options to reduce the risk of introduction and spread of a pest. Since the key objective of this Issues Paper is to document the approach to and preliminary results of pest categorisation, this component of the PRA is discussed in further detail.

Under ISPM *Pest Risk Analysis for Quarantine Pests*, pest categorisation describes the process for determining whether a pest has or has not the characteristics of a quarantine pest, or those of a regulated non-quarantine pest. The objective of pest categorisation is thus to screen an exhaustive pest list so as to identify those that require an in-depth examination of the likelihood and consequences of introduction and spread.

ELEMENTS OF PEST CATEGORISATION

In accordance with the ISPM *Pest Risk Analysis for Quarantine Pests* pest categorisation is based on the following elements or steps:

- Identity of the pest
- Presence or absence in the PRA area
- Regulatory status
- Potential for establishment and spread in the PRA area
- Potential for economic consequences (including environmental consequences) in the PRA area.

A description of these elements of pest categorisation from the ISPM *Pest Risk Analysis for Quarantine Pests* is given below.

¹ PRA is used throughout this document as an abbreviation of Pest Risk Analysis. AFFA employs the term PRA to describe the technical component of an import risk analysis.

Identity of the pest

The identity of the pest should be clearly defined to ensure that the assessment is being performed on a distinct organism, and that biological and other information used in the assessment is relevant to the organism in question. If this is not possible because the causal agent of particular symptoms has not yet been fully identified, then it should have been shown to produce consistent symptoms and to be transmissible.

The taxonomic unit for the pest is generally species level. The use of a higher or lower taxonomic level should be supported by scientifically sound rationale. In the case of levels below the species, this should include evidence demonstrating that factors such as differences in virulence, host range or vector relationships are significant enough to affect phytosanitary status.

In cases where a vector is involved, the vector may also be considered a pest to the extent that it is associated with the causal organism and is required for transmission of the pest.

Presence or absence in the PRA area

The pest should be absent from all or a defined part of the PRA area.

Regulatory status

If the pest is present but not widely distributed in the PRA area, it should be under official control or expected to be under official control in the near future.

Potential for establishment and spread in the PRA area

Evidence should be available to support the conclusion that the pest could become established or spread in the PRA area. The PRA area should have ecological/climatic conditions including those in protected conditions suitable for the establishment and spread of the pest where relevant, host species (or near relatives) alternate hosts and vectors should be present in the PRA area.

Potential for economic consequences in the PRA area

There should be clear indication that the pest is likely to have an unacceptable economic impact (including environmental impact) in the PRA area.

This Issues Paper identifies pests relevant to *Ananas comosus* (L.) Merr. (pineapple), and describes their association with the fruit-crown (leaf). The remaining elements of pest categorisation will be presented and discussed within the draft IRA document.

BACKGROUND

Over the past several years a number of countries have sought access for their pineapples to the Australian market. Access requests have now been received from the Philippines, Solomon Islands, Sri Lanka and Thailand.

Philippines

The Philippines Bureau of Plant Industry (BPI) has been seeking market access for exports of pineapples from the Philippines to Australia since 1995 as part of a general request for access for exports of bananas, mangoes and pineapples. In June 1996, BPI and AQIS mutually resolved that mango was the top priority for the Philippines, and accordingly that IRAs for bananas and pineapples would be progressed in due course.

At a meeting of the Philippines-Australia Joint Commission in Canberra in May 1999, the Philippines' authorities indicated that their next market access priority was bananas following the imminent completion of market access negotiations for exports of Philippine mangoes to Australia. In May 2000, BPI provided Biosecurity Australia with a pest lists for Philippines' bananas and pineapples and requested that IRAs for these commodities be conducted simultaneously.

Solomon Islands

In early 1991, AQIS received an application from the Solomon Islands Ministry of Agriculture and Lands to export fresh fruit and vegetables, including pineapples, to Australia. In March 1991, pest lists were received from the Solomon Islands. As a number of years have since elapsed, Biosecurity Australia has endeavoured to obtain an updated pest list for pineapples from the Solomon Islands.

Sri Lanka

In 1999, an Australian importer requested access to pineapples exported from Sri Lanka. Biosecurity Australia has requested a pest list from Sri Lanka.

Thailand

At the 5th Thailand-Australia Joint Technical Working Group meeting held in Canberra in February 2001, the Thai authorities requested access to the Australian market for pineapples exported from Thailand. Biosecurity Australia subsequently requested a pineapple pest list from Thailand.

Issues Paper: the importation of fresh pineapple fruit

Due to the fact that a number of countries have submitted access requests and due to the commonality of major quarantine pests of pineapples among producing countries, it is considered better use of government resources to conduct the IRA as a global IRA. The rationale for using the global IRA approach was given in Plant Biosecurity Policy Memorandum 2000/20 (issued on 17 October 2000).

Stakeholder Issues

Biosecurity Australia held a stakeholder workshop in Brisbane on 3 April 2001. The purpose of the workshop and the items covered were outlined to all stakeholders in Plant Biosecurity Policy Memorandum 2001/04 (issued on 16 March 2001). A number of issues were raised in the meeting. All registered stakeholders were advised of these issues in Plant Biosecurity Policy Memorandum 2001/09 (issued on 18 April 2001).

Biosecurity Australia undertook to respond to these issues in an Issues Paper. For some issues, stakeholders undertook to provide assistance by way of the provision of information. Biosecurity Australia's response to issues raised by stakeholders is contained in Appendix 1.

ADMINISTRATION

Timetable

The tentative time frame for completion of the IRA is mid 2002.

Further steps in the IRA process are outlined in the last section of this paper. Given the nature of the task, it would not be prudent to give definitive time frames for these steps at this stage. Stakeholders will be advised of key forthcoming events throughout the process in a timely manner.

Scope

This IRA considers quarantine risks that may be associated with the importation to Australia of fresh pineapples with crowns from all countries for human consumption. The IRA is considered to be 'global', in that it is not based upon particular exporting countries. The occurrence of pests and other country-specific factors are, however, considered in the specification of risk management.

For the purposes of this IRA, fresh pineapple defined as fresh pineapple with crowns (leaf) from all countries for human consumption.

AUSTRALIA'S CURRENT QUARANTINE POLICY FOR IMPORTS OF PINEAPPLE

International quarantine policy

Fresh fruit

Imports of fresh pineapple fruit into Australia for consumption is currently permitted, under specific import conditions, from the USA, New Zealand and certain European and Pacific island nations. The current import conditions include requirements for an AQIS import permit, a standard phytosanitary certificate from the exporting country, freedom from soil, a six hour methyl bromide fumigation, removal of the crowns, and inspection on arrival in Australia.

Dried/canned/preserved fruit

The importation of dried, peeled and cored pineapple fruit products is permitted from all countries. Similarly, canned/preserved pineapple fruit products may be imported from any country.

Non-tissue culture nursery stock

In vivo pineapple nursery stock (*e.g.* whole plants, cuttings) may be imported from any country subject to requirements that include an import permit, freedom from soil, inspection on arrival, a 2 hour methyl bromide fumigation on arrival and a minimum of 3 months growth in a post-entry quarantine facility for visual disease screening.

Tissue culture nursery stock

In vitro pineapple material may be imported from any country subject to requirements that include an import permit, inspection on arrival and a minimum of 3 months growth (out of tissue culture) in a post-entry quarantine facility for visual disease screening.

Seed

Pineapple seed for sowing may be imported from any country subject to requirements that include freedom from live insects, soil and other contamination, and inspection on arrival.

Details of the importation requirements for pineapples and pineapple products are available in the AQIS Import Conditions database (ICON)².

Domestic arrangements

While the Commonwealth Government is responsible for regulating the movement of plants and their products into and out of Australia, the State/Territory Governments have primary responsibility for plant health controls within Australia. Legislation relating to resource management or plant health may be used by State/Territory Government agencies to control interstate movement of plants and their products.

² Available at <http://www.aqis.gov.au/icon/>

THE PINEAPPLE INDUSTRY

World Production and Trade of Pineapple

Annual world production of pineapple has tripled during the last 30 years (d'Eeckenbrugge and Leal, 2001) and now exceeds 13 million tonnes (FAOSTAT database, 2001). The five largest pineapple producing countries (shown in Table 2) account for 56% of world production. Production in Brazil, Columbia and China has tripled since 1980, while the Philippines and Indonesia have experienced smaller, but significant increases (Rieger, 2001).

Table 2 Pineapple production

Country	Production in 1999 (tonnes)
Thailand	2 353 037
Philippines	1 530 033
India	1 440 000
China	1 231 066
Brazil	1 175 200
World Total	13 768 426

Source: FAOSTAT database, 2001

Approximately 70% of world pineapple production is consumed domestically as fresh fruit (d'Eeckenbrugge and Leal, 2001). Table 3 shows that Costa Rica, Côte d'Ivoire and the Philippines dominate the fresh pineapple trade, accounting for 63% of the world's fresh fruit exports.

Table 3 Fresh pineapple fruit exports

Country	Exports in 1999 (tonnes)
Costa Rica	353 000
Côte d'Ivoire	183 000
Philippines	127 682
USA	31 521
Ghana	21 849
World Total	1 051 706

Source: FAOSTAT database, 2001

The major form in which pineapple is traded is in processed, predominantly canned, pineapple. In 1999, over one million tonnes of canned pineapple were exported, mainly from Thailand, the Philippines and Indonesia which, together, constitute 76% of this figure. Thailand is by far the

most significant country in terms of canned pineapple exports and is responsible for 46% of global exports (FAOSTAT database, 2001).

Table 4 shows that Europe constitutes the largest market for fresh pineapple fruit, followed by the United States. Traditionally, Côte d'Ivoire has supplied Europe with fresh pineapples, while Central American countries have supplied America, and the Philippines has supplied Japan and South Korea. However, with the liberalisation of trade, Central American countries such as Costa Rica, Honduras and Mexico have dramatically increased their share of the European market (d'Eeckenbrugge and Leal, 2001).

Table 4 Fresh pineapple fruit imports

Country	Imports in 1999 (tonnes)
European Union	330 502
USA	283 090
Japan	89 866
Canada	32 507
Singapore	19 962
World Total	1 031 980

Source: FAOSTAT database, 2001

Pineapple cultivars can be grouped into four main classes: 'Smooth Cayenne' 'Red Spanish', 'Queen', and 'Abacaxi', despite much variation in the types within each class (Morton, 1987). Approximately 70% of the world production and 96% of processed pineapple comes from 'Smooth Cayenne' as it is well suited to canning (Morton, 1987).

Production of Pineapple in Australia

The annual production of pineapple fruit in Australia is approximately 153 000 tonnes, the majority of which is canned. Australia is the world's seventeenth largest producer of pineapples (source: FAOSTAT database, 2001). Australia does not export significant quantities of pineapple fruit. Most pineapples grown in Australia are clones of 'Smooth Cayenne', with a small volume of 'Queen' clones.

Almost all of Australia's pineapples are grown in three main coastal regions of Queensland. The South-East Queensland region is the main pineapple growing area in Australia and supplies approximately 70% of Australia's processing pineapples and 60% of pineapples for the fresh market in Australia (Sanewski and Scott, 2000). The Central Queensland region produces pineapples for both the processing and fresh markets while production in the North Queensland region is for the fresh market only (Sanewski and Scott, 2000).

RESULTS OF PEST CATEGORISATION

The first stage of the pest categorisation for fresh pineapple fruit is presented in Appendices 2 and 3. Appendix 2 contains the potential pests associated with pineapple based on the categorisation of their presence or absence in Australia (or present but under official control). Appendix 3 shows the categorisation of whether the potential pests are on the pathway under consideration in this IRA. Appendix 4 summarises the species that are to be considered in the second stage.

Table 5 provides, for each type of microorganism/organism (arthropods, gastropods, nematodes, fungi, weeds etc.), a numerical summary of the total number known to be associated with pineapple plants (including the fruit-crown) worldwide as well as the number of each pest type present in Australia. Many of the microorganisms/organisms associated with the pineapple plant which are not present in Australia may not be on the fruit-crown and thus are not on the import pathway.

Table 5 Numbers of potential pineapple pests worldwide and in Australia

Pest type	Associated with pineapple	Present in Australia	Present in Australia, but under official control, or different strain)	Not present in Australia
Arthropods	181	79	1	102
Gastropods	3	1	0	2
Nematodes	93	24	0	69
Fungi	133	66	1	67
Bacteria	22	14	0	8
Viruses	4	3	1	1
Weeds	84	72	30	12
Total	520	259	33	261

Table 6 summarises the number of the potential pests of pineapple of the various categories that are associated with the pineapple fruit-crown that require further risk consideration.

Table 6 Numbers of potential pineapple pests on the import pathway (fruit-crown) for further consideration

Pest type	Number of potential pest	On fruit-crown (leaf) considered further
Arthropods	103	75
Gastropods	2	2
Nematodes	69	0
Fungi	68	49
Bacteria	8	7
Viruses	2	2
Weeds	42	40
Total	294	175

Arthropods

Of the 181 arthropod species known on pineapples worldwide, 79 occur in Australia. Of the 79 species that occur in Australia, only one species (Mediterranean fruit fly, *Ceratitis capitata*) is under official control and only in some states. Of the 103 arthropod species (Medfly together with the remaining 102 species that do not occur in Australia), 75 species may be associated with the pineapple fruit-crown (leaf) pathway and will be considered further in the risk analysis.

Gastropods

Of the three gastropod species known on pineapples worldwide, one of these species occurs in Australia. The remaining two species not found in Australia can potentially be found on the pathway and will be considered further in the analysis.

Nematodes

Of the 93 nematode species known on pineapples worldwide, 24 occur in Australia. Of the 69 species that do not occur in Australia, none are considered further in the analysis as they do not occur on the fruit or crown (leaf) pathway.

Fungi

Of the 133 fungal species known on pineapples worldwide, 66 occur in Australia. One species, *Fusarium subglutinans*, has been reported to have different strains in Brazil and is included for further consideration despite its presence in Australia. Of the remaining 67 species that do not occur in Australia, many of them are saprophytes or occur in the pineapple rhizosphere and are not considered for further analysis. Thus only 49 species (inclusive of *F. subglutinans*) will be considered further in the risk analysis.

Bacteria

Of the 22 bacteria known on pineapples worldwide, 14 occur in Australia. Of the 8 species that do not occur in Australia, 7 potentially associated with the fruit-crown pathway and are included for further analysis.

Viruses

Of the 4 viruses reported on pineapples worldwide, 3 occur in Australia. One of these, PMWaV – pineapple wilt-associated *closterovirus* has been reported to have different strains. Thus 2 viruses are potentially associated with the fruit-crown and are included for further analysis.

Weeds

Of the 84 weeds known to be associated with pineapples worldwide, 72 occur in Australia. Of these 72 species, 30 species are restricted. Two species (*Borreria alata* and *B. erecta*) are not reported in Australia but are deemed to be unrestricted species, therefore they are not included for further analysis. Thus 30 species are included for further risk assessment together with the 10 species not found in Australia.

The occurrence in Australia of pests associated with *Ananas cosmosus* (pineapple) is summarised in Appendix 2. The association of pests with pineapple fruit and crown (leaves) is summarised in Appendix 3.

CONCLUDING REMARKS

Many of the pests of pineapple are not on the import pathway (*i.e.* do not occur on the fruit) or are already in Australia. These pests do not need to be considered further in the IRA. The second stage of the pest categorisation will be completed following further analysis and stakeholder consultation. The final results of the pest categorisation and the complete risk assessment phase will be fully documented and released in the Draft IRA paper. This next stage of further consideration will involve determinations of whether the pests are of economic significance and whether they have the potential to establish and spread in Australia.

FURTHER STEPS IN THE IMPORT RISK ANALYSIS PROCESS

The IRA process requires that the following steps be undertaken for a routine IRA:

- Release of the draft IRA paper for stakeholder comment
 - comment to be received within 60 days
- Consideration of stakeholder comment on the draft IRA paper
 - further stakeholder consultation as necessary
- Preparation of the final IRA paper
- Submission of recommendations to the Director of Animal and Plant Quarantine
- Consideration of recommendations by the Director of Animal and Plant Quarantine and final determination
- Release of the final IRA paper
- Consideration of any appeals
- If no appeals, or if appeals are rejected, adoption of the quarantine policy.

Stakeholders will be advised of any significant variations to this process.

Biosecurity Australia is committed to a thorough risk analysis of the proposed importation of fresh pineapples from all countries. This analysis requires that technical information be gathered from a wide range of sources. The timely contribution of information would be much appreciated³.

³ Contact details for stakeholder contributions are provided in the accompanying Plant Biosecurity Policy Memorandum (PBPM).

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APPENDIX 1: ISSUES RAISED AT THE STAKEHOLDER WORKSHOP

1. The effect of methyl bromide fumigation on the shelf-life of pineapples

Del Monte representatives undertook to provide information on the deleterious effect of methyl bromide on the shelf-life of pineapples.

Dr Leandro Lucas from Del Monte stated in his 12 July 2001 e-mail to Biosecurity Australia that methyl bromide burns the crown leaves and the surface of the fruit which becomes apparent several days after treatment. Methyl bromide makes the fruit look older. Hydrogen cyanide is used as an alternate fumigant.

2. Strains of *Fusarium subglutinans*

Camargo and Baracho (1977) reported significant differences among strains of *Fusarium moniliforme* (*Gibberella fujikuroi*) var. *subglutinans* (syn. *Fusarium subglutinans*) in terms of leaf lesion size following artificial inoculation. Biosecurity Australia has only viewed the abstract for the Camargo and Baracho (1977) paper and is awaiting a translation of the entire paper. This issue will be further evaluated in the Draft IRA.

Dr Leandro Lucas from Del Monte clarified in his 12 July 2001 e-mail to Biosecurity Australia that much confusion exists in the literature regarding the species of *Fusarium*. Strains of *Fusarium* are as follows based on the literature and personal communications with Ken Rohrbach of the University of Hawaii.

First strain

F. moniliforme var. *subglutinans*

F. subglutinans f. sp. *ananas*

F. guttiiforme Nirenberg

These names refer to the same microorganism causing fusariosis fruit disease only in Brazil.

Second strain

F. moniliforme var. *subglutinans*

F. subglutinans

These names refer to the same pathogen causing fruitlet core rot in Hawaii and in the Philippines.

3. Strains of closterovirus associated with pineapple wilt

There are at least two serotypes of the Pineapple mealybug wilt-associated closterovirus (PMWaV) (Melzer *et al.*, 2001). This issue will be considered further in the Draft IRA.

Dr Leandro Lucas from Del Monte clarified in his 12 July 2001 e-mail to Biosecurity Australia that he and his colleagues cannot find any literature on the strains of the pineapple wilt-associated closterovirus, if any exist.

4. Risks and management of contaminating soil and other debris on pineapple fruit

Of all commodities and materials, soil quite possibly constitutes the most serious quarantine risk. Soil can carry a large range of pest organisms including weed seeds, pests and pathogens of both plants and animals. As a result, the importation of untreated soil into Australia is prohibited. It has long been a standard requirement that goods entering Australia be free of soil and other extraneous contamination.

Soil present as a contaminant of imported goods such as shipping containers, used agricultural machinery, onions, garlic, flower bulbs, whole plants for growing, seed for sowing and grain for processing or consumption has always been prohibited by AQIS. Where goods contaminated with soil enter Australia, AQIS requires that the goods be treated in such a manner as to remove the soil. Otherwise, the goods must be re-exported or destroyed.

Obviously, there are practical limits to ensuring goods are free of soil and it would not be reasonable to expect that goods (including overseas tourists) will be 100% free of soil particles. However, AQIS does require that goods are substantially free of soil and goods which are inspected and found to be grossly contaminated must be treated to remove that contamination. The same principle would apply to pineapples (regardless of whether or not the crowns are attached). Any future import conditions developed for pineapples would include a requirement for the goods to be free of soil and other extraneous contamination (as well as live insects). In the case of pineapple fruit, 'other extraneous contamination' is taken to mean anything that is not pineapple fruit. This includes plant trash (of pineapple or other plants), contaminating seeds, animal faeces and other animal material.

The presence of crowns may require the development of an inspection procedure or treatment (*e.g.* washing) to facilitate compliance with the basic requirement that the pineapples be free of soil and other extraneous contamination.

It should be noted that AQIS may grant permission for the importation of soil samples for analysis where the soil is treated in a manner that would devitalise any pest organisms that could possibly be associated with the soil. One such treatment is gamma irradiation.

5. Weed seeds associated with pineapple fruit

Further to Point 4 above, Biosecurity Australia is investigating weeds that have been recorded in association with pineapple crops in order to evaluate the risks of seeds of these weed species being associated with imported pineapple fruit (*e.g.* in the crowns). Once again, it should be noted that any imports of pineapple fruit will be required to be free of contamination with material such as weed seeds of quarantine concern. Biosecurity Australia has conducted some preliminary work on weeds known to be associated with pineapple cultivation (see Appendix 2). Evaluation of the risk of weed seeds associated with imports of pineapple fruit will be further developed in the Draft IRA.

6. The risk associated with *Asca pineta* (mite)

Asca pineta is a predatory mite (Sanches and Flechtmann, 1982; Walter *et al.*, 1993) rather than a pest of pineapples. As such, it is not considered to represent a significant quarantine risk in association with imported pineapples. *A. pineta* has been recorded in Brazil (Sanches and Flechtmann, 1982) and Guyana (De Leon, 1967).

7. Clarification of the status of *Forcipomyia brevis* (pineapple midge) and *Pantoea citrea* (pink disease)

The causal agent of pink disease, *Pantoea citrea*, has only been recorded in the Philippines (BPI, 2000; Cha *et al.*, 1997; Hine, 1976; Pujol and Kado, 1999). Previously, other organisms (mainly *Gluconobacter oxydans* and *Acetobacter aceti*) have been attributed to pink disease. Cha *et al.* (1997) concluded that true pink disease is caused by *Pantoea citrea*. Currently, *Pantoea citrea* is considered a quarantine pest on the import pathway (which therefore requires some form of management). This pest will be considered further in the Draft IRA.

Forcipomyia brevis (pineapple midge) has been recorded in the Philippines (BPI, 1999) and Hawaii (USA) (Lim, 1977). Johanssen (1927) recorded Dr J.F. Illingworth as having observed that maggots making slight scars in the water that collects in leaf axils. These scars may facilitate entry by pathogens. This pest will be considered further in the Draft IRA.

8. Further information on *Metapocyrtus* sp. (broad-nosed weevil)

Del Monte representatives undertook to provide information on this pest.

Dr Leandro Lucas from Del Monte clarified in his 12 July 2001 e-mail to Biosecurity Australia that the recorded *Metapocyrtus* species are as follows: *M. apoensis*, *M. bituberosus*, *M. impius*, *M. trifaciat* and *M. viridulus*. Dr Lucas has also stated that there is conflicting data on the taxonomy, distribution, and bionomics in the literature. The weevil is not a pest in pineapple in Mindanao. A complete fact sheet write-up is included in the list to be submitted to Biosecurity Australia shortly.

9. Clarification of the distribution of *Paratrechina longicornis* (crazy ant) and *Solenopsis geminata* (tropical fire ant) in Australia

The yellow crazy ant (*Anoplolepis gracilipes*) has long been established on Christmas Island and the Gove Peninsula in the Northern Territory. More recently, this species has been recorded in the Cairns area. Biosecurity Australia is not aware of any records of this species as a pest of pineapple.

Another species of crazy ant, *Paratrechina longicornis* (also known as hairy ant), has been recorded on pineapple. This species occurs in the Darwin area of the Northern Territory (around Katherine Gorge and Darwin), north Queensland (Townsville and further north) and Western Australia (in the Kimberley region) (Shattuck, pers. com.).

Tropical fire ant (*Solenopsis geminata*) has also been recorded on pineapple. This species has been recorded in the Darwin area (Andersen and Reichel, 1994; Shattuck, pers. com.).

Imported red fire ant (*Solenopsis invicta*) which has recently been detected in Queensland is not known to have been recorded on pineapple.

10. Potential animal quarantine risks (e.g. foot and mouth disease) to be addressed in the Draft IRA

Further to Point 4 above and specifically in relation to the risk of animal diseases such as foot and mouth disease being carried on imported pineapples, the quarantine veterinary advice received from Animal Biosecurity was to the effect that, providing the fruit is free of gross contamination with soil, the risk is negligible. This advice is consistent with AQIS's longstanding policies on contamination with soil. This issue will also be addressed in the Draft IRA.

11. The risk associated with snails on pineapples

During a review of available literature, Biosecurity Australia has found only one snail species recorded on pineapple, *Bradybaena similaris* (Asian tramp snail) (Dundee, 1974). Dundee (1974) recorded *Bradybaena similaris* as being intercepted by the US Department of Agriculture on imported pineapples. This species is established in coastal areas of Australia from southern NSW to northern Queensland (Stanisic, 1998).

Biosecurity Australia has been advised of another two species of snail occurring on pineapple: *Cecilioides aperta* and *Opeas pumilum* (Scott, pers. com.). Biosecurity Australia has not found any records of these snails in Australia. They will be considered further in the Draft IRA.

APPENDIX 2: PEST CATEGORISATION FOR PINEAPPLES (PRESENCE/ABSENCE)

Note: Biosecurity Australia will review these tables during the course of the IRA process

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
Arthropoda					
<i>Adoretus ictericus</i> Burmeister, 1844 [Coleoptera: Scarabaeidae]	white grub	South Africa (Smith <i>et al.</i> , 1995)	No		Yes
<i>Adoretus sinicus</i> Burmeister, 1855 [Coleoptera: Scarabaeidae]	Chinese rose beetle	China (Hong Kong, Taiwan), India, Indonesia, Korea, USA (Hawaii) (Wilcox, 1972); Japan (Furuno, 1993); Kampuchea, Laos, Marianas Islands, Singapore (CIE, 1981); Malaysia, Thailand, Vietnam (Waterhouse, 1993)	No		Yes
<i>Adoretus tessulatus</i> Burmeister, 1855 [Coleoptera: Scarabaeidae]	pineapple white grub	South Africa (Petty, 1977)	No		Yes
<i>Ahasverus advena</i> (Waltl, 1834) [Coleoptera: Cucujidae]	foreign grain beetle	Bangladesh, Ecuador, Jamaica, Lesotho, Malawi, Nigeria, Philippines, Singapore, Solomon Islands, Sri Lanka, Trinidad & Tobago (Haines, 1981); Brazil (Abreu & Williams, 1980); Bulgaria (Atanasov, 1974); Canada (White & Jayas, 1991); Ethiopia (Haines, 1974); Japan (Yoshida, 1984); Malaysia (Yunus & Ho, 1980); Mexico (Tigar <i>et al.</i> , 1994); Sweden (Palm, 1979); United Kingdom (Aitken, 1975); USA (Pedersen, 1992)	Yes	Greening, 1973; Naumann, 1993	No
<i>Amblyseius barkeri</i> (Hughes) [Acarina: Phytoseiidae]	predatory mite	Cosmopolitan e.g. China (Wu, 1982), Egypt (Momen & Amer, 1999), Israel (Swirski <i>et al.</i> , 1973), Netherlands (Bakker & Sabelis, 1989), South Africa (Willers, 1992a), USA (Hessein & Parrella, 1990), USSR (Kolodochka, 1985)	Yes	Halliday, 1998 (as <i>Neoseiulus barkeri</i>)	No
<i>Amblyseius benjamini</i> Schicha, 1981 [Acarina: Phytoseiidae]	predatory mite	Australia (Halliday, 1998; Schicha, 1981)	Yes	Halliday, 1998; Schicha, 1981	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Amblyseius peltatus</i> van der Merwe, 1968 [Acarina: Phytoseiidae]	predatory mite	Papua New Guinea (Schicha & Gutierrez, 1985); South Africa (van der Merwe, 1968; Willers, 1992a)	Yes	Halliday, 1998; Schicha, 1983	No
<i>Anagyrus coccidivorus</i> Dozier [Hymenoptera: Encyrtidae]	parasitic wasp	Puerto Rico (Schotman, 1989); USA (Hawaii) (Schotman, 1989)	No		Yes
<i>Anomala</i> sp. [Coleoptera: Scarabaeidae]	white grub	Philippines (BPI, 2000)	No		Yes
<i>Anomocaulus fulvovestitus</i> Fairmaire, 1878 [Coleoptera: Scarabaeidae]	pineapple borer	Fiji (Endrödi, 1985; MAF NZ, 1999a; Swain, 1971; Watt, 1986)	No	Watt, 1986	Yes
<i>Anoplognathus porosus</i> (Dalman) [Coleoptera: Scarabaeidae]	Christmas beetle	Australia (Carne <i>et al.</i> , 1974; Waite, 1993)	Yes	Carne <i>et al.</i> , 1974; Waite, 1993	No
<i>Antitrogon mussoni</i> (Blackburn, 1892) Syn. = <i>Rhopaea mussoni</i> Blackburn [Coleoptera: Scarabaeidae]	Nambour cane grub	Australia (Waite, 1993)	Yes	Waite, 1993	No
<i>Apis mellifera</i> Linnaeus, 1758 [Hymenoptera: Apidae]	honey bee	Cosmopolitan	Yes	Naumann, 1993	No
<i>Araucomyrmex</i> sp. [Hymenoptera: Formicidae]	ant	Guyana (Nakasone & Paull, 1998)	No		Yes
<i>Asca pineta</i> De Leon [Acarina: Ascidae]	mite	Brazil (Sanches & Flechtman, 1982); Guyana (De Leon, 1967)	No	Halliday, 1998; Walter <i>et al.</i> , 1993	Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Aspidiotus destructor</i> Signoret Syn. = <i>Aspidiotus transparens</i> Green [Hemiptera: Diaspididae]	transparent scale	Angola, Brazil, Burma, Burundi, Cambodia, Cameroon, Canary Islands, Cape Verde Islands, Caroline Islands, China (Hong Kong), Colombia, Congo, Côte d'Ivoire, Dahomey, Ecuador, Egypt, Eritrea, Ethiopia, Fiji, Galapagos Islands, Ghana, Guinea, Guyana, India, Indonesia, Iran, Japan, Kenya, Madeira, Malagasy, Malaysia, Mariana Islands, Marquesas Islands, Mauritania, Mauritius, Mexico, Mozambique, New Caledonia, New Hebrides, Nigeria, Pakistan, Papua New Guinea, Peru, Philippines, Réunion, Rwanda, Samoa, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Africa, Sri Lanka, Sudan, Surinam, Tahiti, Tanzania, Thailand, Togo, Venezuela, Vietnam, West Indies, Uganda, USA, USSR Zambia (CIE, 1966a)	Yes	CIE, 1966a; Naumann, 1993	No
<i>Aspidiotus nerii</i> Bouché, 1833 [Hemiptera: Diaspididae]	pineapple scale; oleander scale	Lord Howe Island, New Caledonia, Norfolk Island (Williams & Watson, 1988a)	Yes	Houston, 1991; Smith <i>et al.</i> , 1998	No
<i>Asthenopholis subfasciata</i> Blanchard [Coleoptera: Scarabaeidae]	root feeding beetle	South Africa (Smith <i>et al.</i> , 1995)	No		Yes
<i>Atherigona orientalis</i> Schiner, 1868 Syn. = <i>A. excisa</i> Thomson [Diptera: Muscidae]	pepper fruit fly; shoot fly	Bangladesh, China, Ecuador, Egypt, Ghana, India, Indonesia, Malaysia, Nigeria, Papua New Guinea, Philippines, Sri Lanka, Sudan, Tanzania, USA, Venezuela, West Indies (Cahill, 1992)	Yes	Cahill, 1992	No
<i>Augosoma centaurus</i> Fabricius, 1775 [Coleoptera: Scarabaeidae]	African rhinoceros beetle	Cameroon (Venard-Combes & Mariau, 1983); Côte d'Ivoire (Guérout, 1974a); Ghana (Gyasi, 1996)	No		Yes
<i>Bactrocera kirki</i> (Froggatt, 1910) [Diptera: Tephritidae]	Fijian fruit fly	American Samoa, French Polynesia, Niue, Tahiti, Tonga, Western Samoa (Drew 1989)	No	Drew, 1989	Yes
<i>Bactrocera passiflorae</i> (Froggatt) [Diptera: Tephritidae]	fruit fly	Fiji (Drew, 1982; Heimoana <i>et al.</i> , 1997); Niue (Drew, 1982); Tonga (Drew, 1982; Heimoana <i>et al.</i> , 1997); Tuvalu (Waterhouse, 1993); Western Samoa (Heimoana <i>et al.</i> , 1997)	No	Drew, 1989	Yes
<i>Bactrocera trilineola</i> Drew, 1989 [Diptera: Tephritidae]	fruit fly	Vanuatu (Drew, 1989; Heimoana <i>et al.</i> , 1997)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Bactrocera xanthodes</i> (Broun, 1905) [Diptera: Tephritidae]	fruit fly	Cook Islands, Fiji, Vanuatu, Western Samoa (Drew, 1989)	No		Yes
<i>Baris</i> sp. [Coleoptera: Curculionidae]	weevil	Venezuela (Martinez, 1976)	No		Yes
<i>Barybus</i> sp. [Coleoptera: Scarabaeidae]	weevil	El Salvador (Bachli & Redmond, 1997)	No		Yes
<i>Batrachedra mathesoni</i> Busck, 1916 [Lepidoptera: Batrachedridae]	leafminer	Caribbean Region (Nakasone & Paull, 1998; Rohrbach, 1983)	No	Nielsen <i>et al.</i> , 1996	Yes
<i>Bemisia tabaci</i> (Gennadius, 1889) [Hemiptera: Aleyrodidae]	tobacco whitefly	Cosmopolitan (CABI/EPPO, 1999a)	Yes	CABI/EPPO, 1999a; Naumann, 1993	No
<i>Blitopertha orientalis</i> (Waterhouse) Syn. = <i>Anomala orientalis</i> Waterhouse [Coleoptera: Scarabaeidae]	Oriental beetle	China (Taiwan), Japan, Korea, USA (mainland), USA (Hawaii) (CIE, 1959; Potts, 1977); Japan (Suzuki <i>et al.</i> , 1992; Waterhouse, 1875); USA (Dunbar & Beard, 1975; Tashiro <i>et al.</i> , 1982)	No	CIE, 1959	Yes
<i>Bombus</i> sp. [Hymenoptera: Apidae]	bumble bee	Brazil (Costa & Lordello, 1988)	No? (<i>B. terrestris</i> is present in Tasmania)	Hingston & McQuillan, 1999	Yes
<i>Bradysia molokaiensis</i> (Grimshaw, 1901) [Diptera: Sciaridae]	fungus gnat	USA (Hawaii) (Evenhuis, 1989; Shaw, 1952)	No	Evenhuis, 1989	Yes
<i>Carpophilus dimidiatus</i> (Fabricius, 1792) [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Cosmopolitan e.g. Brazil (Ghosh & Silva, 1972), Egypt (Ibrahim <i>et al.</i> , 1970), India (Bel'skaya & Popova, 1978), Indonesia (Soekarna & Kilin, 1981), Nigeria (Riley, 1969), Spain (Plaza, 1976), USA (Brower <i>et al.</i> , 1973)	Yes	Barrer, 1983	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Carpophilus hemipterus</i> (Linnaeus, 1758) [Coleoptera: Nitidulidae]	pineapple sap beetle, souring beetle, dried fruit beetle	Cosmopolitan e.g. Brazil (Ghosh & Silva, 1972), Israel, Kenya, Egypt (Ibrahim <i>et al.</i> , 1970), Spain (Plaza, 1976), USA (Hawaii) (Lai & Funasaki, 1982, 1986; Noyes, 1982)	Yes	James <i>et al.</i> , 1995	No
<i>Carpophilus humeralis</i> (Fabricius, 1798) Syn. = <i>Urophorus humeralis</i> Fabricius; <i>Carpophilus punctatus</i> Melsheimer; <i>Carpophilus rickseckeri</i> Fall; <i>Carpophilus foveicollis</i> Murray [Coleoptera: Nitidulidae]	dried fruit beetle; pineapple sap beetle; souring beetle; pineapple beetle	Kenya (Noyes, 1982); Malaysia (Tan <i>et al.</i> , 1969); Philippines (BPI, 2000); Puerto Rico (Gallardo & Medina, 1983); USA (Hawaii) (Lai & Funasaki, 1982, 1986); universal (Nakasone & Paull, 1998)	Yes	James <i>et al.</i> , 1995	No
<i>Carpophilus maculatus</i> (Murray) [Coleoptera: Nitidulidae]	pineapple sap beetle, souring beetle, dried fruit beetle	India (Bel'skaya & Popova, 1978); Philippines (BPI, 2000)	Yes	Terauds <i>et al.</i> , 1986	No
<i>Carpophilus mutilatus</i> Erichson Syn. = <i>Carpophilus mutabilis</i> (sic) (MAF NZ, 1999a) [Coleoptera: Nitidulidae]	corn sap beetle	Fiji (MAF NZ, 1999a); Greece (Soultanopoulou-Mantaka, 1976); India (Rathore & Sengar, 1972); Israel (Kehat <i>et al.</i> , 1976); Libya (Ahmed, 1978); Philippines (Schwettmann, 1988); USA (Okumura & Savage, 1974; Weiss & Williams, 1980)	Yes	James & Vogeley, 2000; James <i>et al.</i> , 2000	No
<i>Castnia penelope</i> Schaufuss Syn. = <i>Castnia icarus</i> Cramer [Lepidoptera: Castniidae]	pineapple sap beetle, souring beetle, dried fruit beetle	Brazil (Schotman, 1989)	No		Yes
<i>Castniomera licus</i> (Drury) Syn. = <i>Castnia liciodes</i> Boisduval; <i>Castnia licus</i> (Drury); <i>Papilio licus</i> Drury [Lepidoptera: Castniidae]	banana stem borer	Brazil (Antunes & Coehlo, 1994); Costa Rica (Fernandez, 2000); Guyana (Duke & Eastwood, 1997); Panama (Esquivel, 1980); Surinam (Heyde, 1973); Tobago (Vignes, 1983); Trinidad, Venezuela (Linares <i>et al.</i> , 1996)	No		Yes
<i>Ceratitis capitata</i> Wiedemann [Diptera: Tephritidae]	Mediterranean fruit fly	Widespread throughout Africa, Central America, Europe, Middle East, South America (CABI/EPPO, 1999b)	Yes (under official control in WA)	CABI/EPPO, 1999b	Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Chelacheles</i> sp. [Acarina: Cheyletidae]	mite	Brazil (Sanches & Flechtmann, 1982)	No (genus not present in Australia)	Halliday, 1998	Yes
<i>Chionaspis minor</i> Maskell Syn. = <i>Pinnaspis minor</i> Maskell [Hemiptera: Diaspididae]	scale	Antigua & Barbuda, Barbados, Brazil, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Mexico, Panama, Puerto Rico, Trinidad & Tobago, USA (Schotman, 1989); Malaysia (Yunus & Ho, 1980)	No		Yes
<i>Cholus spinipes</i> (Fabricius, 1781) Syn. = <i>Cholus wattsi</i> Marshall [Coleoptera: Curculionidae]	weevil	Grenada (Marshall, 1922; O'Brien, 1994; Schotman, 1989)	No		Yes
<i>Cholus vaurieae</i> O'Brien, 1994 [Coleoptera: Curculionidae]	weevil	Venezuela (O'Brien 1994; Salas & O'Brien, 1997)	No		Yes
<i>Cholus zonatus</i> (Swederus) Syn. = <i>Polydectes zonatus</i> Swederus [Coleoptera: Curculionidae]	weevil	Martinique, Saint Lucia (Schotman 1989)	No		Yes
<i>Colaspis</i> sp. [Coleoptera: Chrysomelidae]	beetle	El Salvador (Bachli & Redmond, 1997)	No		Yes
<i>Congella valida</i> Péringuey Syn. = <i>Hoplebaea valida</i> [Coleoptera: Scarabaeidae]	root feeding beetle	South Africa (Smith <i>et al.</i> , 1995)	No		Yes
<i>Cotinis mutabilis</i> (Gory & Percheron) (<i>Cotinus mutabilis</i> (sic)) [Coleoptera: Scarabaeidae]	beetle	El Salvador (McGuire & Crandall, 1967); Mexico (Deuve, 1992); USA (Thomas, 1981)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Cryptophlebia leucotreta</i> (Meyrick) Syn. = <i>Argyroplote leucotreta</i> Meyrick; <i>Cryptophlebia roerigii</i> Zacher; <i>Thaumatotibia roerigii</i> Zacher; <i>Olethreutes leucotreta</i> Meyrick [Lepidoptera: Tortricidae]	false codling moth; bollworm	Angola, Benin, Burkina Faso, Burundi, Cameroon, Chad, Congo Democratic Republic, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Réunion, Saint Helena, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe (CIE, 1976); Israel (Wysoki, 1986)	No		Yes
<i>Cryptostigma robertsi</i> Williams & Watson, 1990 [Hemiptera: Coccidae]	scale	Ecuador (MAF NZ, 1999b); Papua New Guinea (Williams & Watson, 1990)	No	Williams & Watson, 1990	Yes
<i>Dactylosternum abdominale</i> (Fabricius) [Coleoptera: Hydrophilidae]	beetle	Barbados, Bermuda (Schotman, 1989); France (Roge, 1984); Kenya (Koppenhofer & Schmutterer, 1993); Malaysia (Yunus & Ho, 1980)	Yes	Newton, 1989	No
<i>Dasyhelea</i> sp. [Ceratopogonidae]	biting midge	Malaysia (Lim, 1982)	? (genus is present in Australia)	Evenhuis, 1989	Yes
<i>Diaspis boisduvalii</i> Signoret, 1869 [Hemiptera: Diaspididae]	orchid scale; Yarwan pawpaw scale	Canada (Steiner & Elliot, 1983); Columbia (Mosquera, 1973); Cook Islands, Fiji, Solomon Islands, Tahiti (Williams & Watson, 1988a); Malaysia (Yunus & Ho, 1980)	Yes	Naumann, 1993	No
<i>Diaspis bromeliae</i> (Kerner) [Hemiptera: Diaspididae]	pineapple scale	Cook Islands, Fiji, French Polynesia, Western Samoa (Williams & Watson, 1988a); Malaysia (Yunus & Ho, 1980); Tanzania (Bohlen, 1973); cosmopolitan (Nakasone & Paull, 1998)	Yes	Murray <i>et al.</i> , 1979; Waite, 1993	No
<i>Dolichotetranychus floridanus</i> (Banks, 1900) Syn. = <i>Stigmaeus floridanus</i> [Acarina: Tenuipalpidae]	pineapple false mite; pineapple red mite, pineapple flat mite; false spider mite	Brazil (Flechtmann, 1976; Sanches & Flechtmann, 1982); China (Taiwan) (Anon., 1980); India (Butani, 1975); Malaysia (Yunus & Ho, 1980); Philippines (BPI, 2000); South Africa (Petty & Webster, 1979); USA (Hawaii) (Rohrbach & Schmitt, 1994)	Yes	Halliday, 1998; Waite, 1993	No
<i>Dolichotetranychus vanderghooti</i> (Oudemans) [Acarina: Tenuipalpidae]	perianth mite	India (Sathiamma, 1985); Malaysia (Yunus & Ho, 1980)	No	Halliday, 1998	Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Drosophila (Sophophora) ananassae</i> Doleschall, 1858 [Diptera: Drosophilidae]	vinegar fly	Malaysia (Yunus & Ho, 1980)	Yes	Evenhuis, 1989	No
<i>Drosophila hydei</i> Sturtevant, 1921 [Diptera: Drosophilidae]	vinegar fly	Cosmopolitan (Markow <i>et al.</i> , 2000)	Yes	Evenhuis, 1989	No
<i>Drosophila simulans</i> Sturtevant, 1919 [Diptera: Drosophilidae]	vinegar fly	Africa, Europe, Middle East, North America, Pacific Islands, South America, Japan (Russell & Woodruff, 1999)	Yes	Evenhuis, 1989; Russell & Woodruff, 1999	No
<i>Dysmicoccus boninsis</i> (Kuwana, 1909) [Hemiptera: Pseudococcidae]	grey sugarcane mealybug	Antigua & Barbuda, Argentina Bahamas, Bermuda, Bonin Islands, Brazil, Côte d'Ivoire, China (Taiwan), Colombia, Cuba, Dominican Republic, Egypt, Ecuador, Federated States of Micronesia (Caroline Island, Ponape Island, Truk Islands), Fiji, Grenada, Guadeloupe, Guam, Haiti, Jamaica, Japan, Madeira Islands, Malaysia, Martinique, Mexico, Montserrat, Mozambique, New Britain, New Caledonia, New Zealand, Northern Mariana Islands (Saipan Island), Palau, Panama, Puerto Rico Rodriques Island, Ryukyu Islands, Sicily, South Africa, Suriname, Tonga, Trinidad & Tobago, Tromelin Island, Tuvalu, USA (Florida, Georgia, Hawaii, Louisiana, Mississippi), US Virgin Islands, Venezuela, Western Samoa (Ben-Dov, 1994)	Yes	Ben-Dov, 1994; Williams, 1985	No
<i>Dysmicoccus brevipes</i> (Cockerell, 1893) <i>Syn. = Pseudococcus brevipes</i> (Cockerell); <i>Dactylopius brevipes</i> Cockerell [Hemiptera: Pseudococcidae]	pineapple mealybug	China (Feng & Liang, 1998; Lu & Lai, 1999); Cook Islands (Williams & Watson, 1988b); Brazil (Menezes <i>et al.</i> , 1977); Côte d'Ivoire (Guérout, 1972); Cuba (Pataki, 1974); Easter Island (Gonzales 1972); India (Butani, 1975; Ghose, 1983); Malaysia (Lim, 1973; Yunus & Ho, 1980); Pakistan (Khan <i>et al.</i> , 1998); Philippines (BPI, 1999); Sri Lanka (Hughes & Samita, 1998); USA (Hawaii) (Beardsley <i>et al.</i> , 1982); cosmopolitan (Nakasone & Paull, 1998)	Yes	Ben-Dov, 1994; Waite, 1993; Williams, 1985	No
<i>Dysmicoccus neobrevipes</i> Beardsley, 1959 [Hemiptera: Pseudococcidae]	pineapple mealybug; annona mealybug	American Samoa, Cook Islands, Costa Rica, Dominican Republic, Ecuador, El Salvador, Fiji, Gilbert Islands, Guam, Guatemala, Haiti, Honduras, Jamaica, Kiribati, Marshall Islands, Mexico, Panama, Peru, Philippines, Puerto Rico, Rota Island, Surinam, Trinidad, Vietnam, Virgin Islands, Western Samoa (Ben-Dov, 1994); Italy (Tranfaglia, 1983); Malaysia (Lim, 1973); Thailand (Waterhouse, 1993); USA (Florida (Anon., 1979a), Hawaii (Beardsley <i>et al.</i> , 1982; Ben-Dov, 1994))	No	Williams, 1985	Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Eudocima fullonia</i> (Clerck, 1764) [Lepidoptera: Noctuidae]	fruit-piercing moth	Angola, Burma, Cameroon, Caroline Islands, China (Hong Kong, Taiwan), Cook Islands, Côte d'Ivoire, Dahomey, Fiji, Ghana, Guinea, India, Indonesia, Japan, Kenya, Korea, Liberia, Malaysia, Madagascar, Malawi, Marianas Islands, Mongolia, Mozambique, Namibia, New Caledonia, New Hebrides, Nigeria, Niue, Pakistan, Papua New Guinea, Philippines, Samoa, Sierra Leone, Singapore, Solomon Islands, Sri Lanka, Tahiti, Tanzania, Thailand, Tonga, Uganda, Vietnam, Zaire, Zimbabwe (CIE, 1977)	Yes	Naumann, 1993; Nielsen <i>et al.</i> , 1996	No
<i>Euetheola bidentata</i> (Burmeister, 1847) Syn. = <i>Dyscinetus bidentatus</i> Burmeister [Coleoptera: Scarabaeidae]	bidentate scarab; rough-headed corn stalk borer	Central America, French Guiana, Guyana, Mexico, Suriname; Trinidad & Tobago, USA, Venezuela (Schotman, 1989); Guatemala (Zoebele, 1975)	No		Yes
<i>Eutetranychus orientalis</i> (Klein, 1936) [Acarina: Tetranychidae]	Oriental mite	Australia (Bolland <i>et al.</i> , 1998)	Yes	Bolland <i>et al.</i> , 1998	No
<i>Ferrisia virgata</i> (Cockerell, 1893) [Hemiptera: Pseudococcidae]	striped mealybug; grey mealybug; white-tailed mealybug	Brazil (Goncalves & Goncalves, 1976); Cook Islands, Fiji, French Polynesia, Indonesia, Kiribati, New Caledonia, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, Western Samoa (Williams & Watson, 1988b); Egypt (Abul-Nasr <i>et al.</i> , 1976); Ghana (Coker, 1994); India (Dorge & Murti, 1970); Madagascar (Peyrelongue <i>et al.</i> , 1974)	Yes	Ben-Dov, 1994; Williams, 1985	No
<i>Forcipomyia (Phytohelea) brevis</i> (Johannsen) [Diptera: Ceratopogonidae]	pineapple midge	Philippines (BPI, 1999); USA (Hawaii) (Johannsen, 1927; Lim, 1977)	No	Evenhuis, 1989	Yes
<i>Frankliniella fusca</i> (Hinds, 1902) [Thysanoptera: Thripidae]	tobacco thrips	Canada, Mexico, Puerto Rico, USA (Hawaii), mainland USA (Jacot-Guillarmod, 1974); Netherlands (Vierbergen, 1995)	No		Yes
<i>Frankliniella occidentalis</i> (Pergande, 1895) [Thysanoptera: Thripidae]	western flower thrips	Argentina, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Estonia, Finland, France, French Guiana, Germany, Greece, Guatemala, Guyana, Hungary, Ireland, Israel, Italy, Japan, Kenya, Korea, Republic of, Kuwait, Latvia, Lithuania, Macedonia, Malaysia, Malta, Martinique, Mexico, Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Puerto Rico, Réunion, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Tunisia, Turkey, United Kingdom, USA (widespread), Venezuela, Zimbabwe (CABI/EPPO, 1999c)	Yes	CABI/EPPO, 1999c; Herron <i>et al.</i> , 1996; Steiner <i>et al.</i> , 1999	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Frankliniella schultzei</i> (Trybom, 1910) [Thysanoptera: Thripidae]	cotton thrips; tomato thrips	Angola, Argentina, Bangladesh, Barbados, Brazil, British Virgin Islands, Belgium, Botswana, Burkina Faso, Cameroon, Cape Verde, Chad, Chile, Colombia, Congo, Cuba, Dominican Republic, Egypt, Ethiopia, Gambia, Ghana, Guyana, Haiti, India, Indonesia, Iran, Iraq, Israel, Jamaica, Kenya, Libya, Madagascar, Malaysia, Mauritius, Morocco, Namibia, Netherlands, Niger, Nigeria, Pakistan, Paraguay, Peru, Philippines, Puerto Rico, Saudi Arabia, Senegal, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Tanzania, Thailand, Togo, Uganda, United Kingdom, USA (Florida, Hawaii), Uruguay, Venezuela, Yemen, Zambia, Zimbabwe (CABI/EPPO, 1999d)	Yes	CABI/EPPO, 1999d; Mound, 1996	No
<i>Genopaschia promotis</i> Dyar, 1914 [Lepidoptera: Pyralidae]	moth	Dominica (Schotman, 1989)	Yes	Nielsen <i>et al.</i> , 1996	No
<i>Geococcus coffeae</i> Green, 1933 [Hemiptera: Pseudococcidae]	coffee root mealybug	Barbados, Brazil, Denmark, El Salvador, India, Martinique, Thailand (Schotman, 1989)	Yes	Ben-Dov, 1994; Williams, 1985	No
<i>Glycyphana sinuata</i> Wallace [Coleoptera: Scarabaeidae]	beetle	Malaysia (Yunus & Ho, 1980)	No		Yes
<i>Gymnonerius fuscus</i> (Wiedemann, 1824) [Diptera: Micropezidae]	stilt fly	Malaysia (Yunus & Ho, 1980)	No	Evenhuis, 1989	Yes
<i>Hambletonia pseudococcina</i> Compère, 1936 [Symphyla: Scutigerellidae]	parasitic wasp	Brazil, China (Taiwan), Colombia, Japan, Puerto Rico, USA (Hawaii) (Tachikawa, 1980); Trinidad & Tobago (Schotman, 1989)	No		Yes
<i>Hanseniella ivorensis</i> Juberthie-Jupeau & Kehe, 1978 [Symphyla: Scutigerellidae]	symphylid	Côte d'Ivoire (Juberthie-Jupeau & Kehe, 1978)	No?		Yes
<i>Hanseniella</i> spp. Bagnall [Symphyla: Scutigerellidae]	symphylid	Brazil (Loureiro & Fortes, 1972); Martinique (Masses, 1979)	? (genus is present in Australia)	Clark & Greenslade, 1996; Murray & Smith, 1986; Waite, 1993	Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Hanseniella unguiculata</i> (Hansen, 1901) [Symphyla: Scutigerellidae]	symphylid	Argentina, Brazil, Venezuela (Hansen, 1901); Réunion Island (Papierok <i>et al.</i> , 1993); universal (Nakasone & Paull, 1998)	No		Yes
<i>Haplothrips gowdeyi</i> (Franklin) [Thysanoptera: Phlaeothripidae]	thrips	Barbados, Saint Vincent (Franklin, 1908); South Africa (Willers, 1992a)	Yes	Mound, 1996	No
<i>Haplothrips nigricornis</i> (Bagnall) [Thysanoptera: Phlaeothripidae]	thrips	South Africa (Rangarajan <i>et al.</i> , 1977; Willers, 1992a)	No	Mound, 1996	Yes
<i>Haptoncus luteolus</i> (Erichson, 1843) Syn. = <i>Epuraea luteola</i> [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	China (Li, 1981); India (Rathore & Sengar, 1972); Iraq (El-Haidari <i>et al.</i> , 1981); Israel (Kehat <i>et al.</i> , 1976); Italy (Ciampolini & Maiolini, 1991); Malaysia (Yunus & Ho, 1980); Saudi Arabia (Hammad <i>et al.</i> , 1981); USA (Vincent & Lindgren, 1972)	No		Yes
<i>Haptoncus mellitula</i> Reitter, 1873 Syn. = <i>Haptoncus mundus</i> Sharp, 1878 [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Philippines (BPI, 2000); USA (Hawaii) (Sharp, 1878)	No		Yes
<i>Haptoncus ocularis</i> (Fairmaire, 1849) Syn. = <i>Epuraea ocularis</i> Fairmaire, 1849 [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Canary Islands (Jelinek, 1997); Malaysia (Yunus & Ho, 1980); USA (Hawaii) (Rohrbach & Schmitt, 1994)	No		Yes
<i>Hemicheyletia bakeri</i> (Ehara, 1962) [Acarina: Cheyletidae]	mite	Brazil (Sanches & Flechtmann, 1982); Egypt (Hassan & Rakha, 1981); Pakistan (Qayyum & Chaudri, 1979); South Africa (Grout & Ueckermann, 1999)	Yes	Halliday, 1998	No
<i>Hercinothrips femoralis</i> (Reuter, 1891) [Thysanoptera: Thripidae]	banded greenhouse thrips; greenhouse thrips; sugarbeet thrips	Widespread e.g. China (Taiwan) (Wang, 1987), Germany (Koch, 1981), Israel (Ben-Dov <i>et al.</i> , 1986), Korea (Woo, 1973), Poland (Seczkowska, 1974), Spain (Lacasa & Martinez, 1988), USA (Denmark, 1977)	Yes	Houston <i>et al.</i> , 1991; Laughlin, 1971; Mound, 1996	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Heteronychus arator</i> (Fabricius, 1775) [Coleoptera: Scarabaeidae]	African black beetle	Sub-Saharan Africa, Madagascar, Saint Helena (Endrödi, 1985)	Yes	Goodyer, 1977; Waite, 1993, Matthiessen, 1999	No
<i>Hoplothrips ananasi</i> Da Costa Lima Syn. = <i>Hoplothrips anasi</i> (sic) [Thysanoptera: Thripidae]	ananas thrips	Brazil (Costa-Lima, 1935; Mound & Marullo, 1996); Ecuador (MAF NZ, 1999b); South America (Schotman, 1989)	No	Mound, 1996	Yes
<i>Killifia acuminata</i> Signoret Syn. = <i>Lecanium acuminatum</i> [Hemiptera: Coccidae]	acuminate scale	Argentina, Bermuda, Brazil, China, France, Japan, USA (Hawaii) (Ben-Dov <i>et al.</i> , 2001); Cook Islands, French Polynesia, Indonesia, New Caledonia, Papua New Guinea, Tonga, Vanuatu, Wallis Islands, Western Samoa (Williams & Watson, 1990); Mexico, Sri Lanka (Hodgson, 1994); Egypt (Habib <i>et al.</i> , 1973; Salama & Saleh, 1971); Fiji (MAF NZ, 1999a)	No	Ben-Dov <i>et al.</i> , 2001	Yes
<i>Lagria villosa</i> Fabricius, 1781 [Coleoptera: Tenebrionidae]	beetle	Africa, Brazil (Clark, 1978; Costa & Lordello, 1988; Edwards, 1977)	No		Yes
<i>Lamprolonchaea smaragdi</i> (Walker, 1849) Syn. = <i>Lonchaea aurea</i> Macquart, 1851 [Diptera: Lonchaeidae]	lance fly	Widespread in Afrotropical region, Mediterranean Region, Bermuda, USA (Hawaii) (McAlpine, 1980); Malaysia (Yunus & Ho, 1980); Marion Island, South Georgia (Hanel <i>et al.</i> , 1998)	Yes	Evenhuis, 1989	No
<i>Lasiodites pictus</i> (Macleay 1825) Syn. = <i>Lasiodactylus pictus</i> (Macleay, 1825); <i>Nitidula picta</i> Macleay, 1825 [Coleoptera: Nitidulidae]	beetle	Malaysia (Yunus & Ho, 1980), Indonesia (Macleay, 1825)	No		Yes
<i>Lepidiota gibbifrons</i> Britton, 1978 [Coleoptera: Scarabaeidae]	white grub; cane grub; chafer beetle	Australia (Qld) (Britton, 1978; Waite, 1993)	Yes	Waite, 1993	No
<i>Lepidiota grata</i> Blackburn [Coleoptera: Scarabaeidae]	white grub; cane grub	Australia (Qld) (Waite, 1993)	Yes	Waite, 1993	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Lepidiota noxia</i> Britton, 1985 [Coleoptera: Scarabaeidae]	white grub; cane grub; noxia cane grub	Australia (Qld) (Britton, 1985; Waite, 1993)	Yes	Waite, 1993	No
<i>Lepidiota squamulata</i> Waterhouse, 1875 [Coleoptera: Scarabaeidae]	white grub; cane grub	Australia (Qld) (Waite, 1993)	Yes	Waite, 1993	No
<i>Leptococcus metroxyl</i> Reyne, 1961 [Hemiptera: Pseudococcidae]	mealybug	Indonesia (Irian Jaya), Papua New Guinea (Williams & Watson, 1988b)	No	Williams & Watson, 1988b	Yes
<i>Leptocoris acuta</i> (Thunberg) [Hemiptera: Coreidae]	rice bug	Bangladesh (Alam, 1971); Burma (Hasse <i>et al.</i> , 1991); China (Wei, 1985); Fiji (MAF NZ, 1999a); India (Prakash & Rao, 2000); Indonesia (Djatnika <i>et al.</i> , 1974); Laos (Dean, 1978); Malaysia (Singh, 1971); Papua New Guinea (Bourke <i>et al.</i> , 1973); Philippines (Custudio, 1978); Sri Lanka (Fernando, 1978)	Yes	Halfpapp, 1982; Kay <i>et al.</i> , 1993	No
<i>Leucopholis irrorata</i> Chevrolat Syn. = <i>Leucopholis pollinosa</i> Burmeister; <i>Leucopholis simillima</i> Blanchard [Coleoptera: Scarabaeidae]	toy beetle; white grub; June beetle	Philippines (Baltazar & Salazar, 1979; BPI, 2000; Litsinger <i>et al.</i> , 1983; Waterhouse, 1993)	No		Yes
<i>Linepithema humile</i> (Mayr) Syn. = <i>Iridomyrmex humilis</i> (Mayr) [Hymenoptera: Formicidae]	ant	Europe, North America, southern Africa, Azores, Canary Islands (Shattuck, 1999), Philippines (BPI, 1999); USA (Hawaii) (Rohrbach & Schmitt, 1994)	Yes	Fletcher, 2000; Shattuck, 1999	No
<i>Locusta migratoria manilensis</i> (Meyen, 1835) Syn. = <i>Locusta migratoria</i> [Orthoptera: Acrididae]	migratory locust; oriental migratory locust	Widespread in Africa, Europe, South Asia, Southeast Asia (CAB International, 2000); Malaysia (Yunus & Ho, 1980)	Yes	Baker, 1993; Dixon, 1999	No
<i>Lybindus dichrous</i> [Hemiptera: Coreidae]	bug	Brazil (Costa & Lordello, 1988)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Macrophylla ciliata</i> Herbst [Coleoptera: Scarabaeidae]	root feeding beetle; white grub	South Africa (Smith <i>et al.</i> , 1995)	No		Yes
<i>Melanaspis bromeliae</i> (Leonardi, 1899) (cited as <i>Melanaspis smilacis</i> in BPI, 2000) [Hemiptera: Diaspididae]	armoured scale	Caroline Islands, Mariana Islands (Nafus <i>et al.</i> , 1999); Philippines (BPI, 2000)	No		Yes
<i>Melanitis leda ismene</i> (Cramer) Syn. = <i>Melanitis determinata</i> Butler [Lepidoptera: Nymphalidae]	rice butterfly; green horned caterpillar	Bangladesh, Bhutan, China, Japan, Laos, Malaysia, Nepal, Pakistan, Philippines, Thailand, Vietnam (Dale, 1994); China (Hong Kong), Korea, Republic of, India, Myanmar, Sri Lanka (APPPC, 1987); Kenya, Mauritius (Brakefield & Manders, 1987)	No	Nielsen <i>et al.</i> , 1996	Yes
<i>Melanoloma canopilosum</i> Hendel [Diptera: Richardiidae]	pineapple fruit fly	Peru (Bello-Amez <i>et al.</i> , 1997a)	No	Evenhuis, 1989	Yes
<i>Melanoloma viatrix</i> Hendel [Diptera: Richardiidae]	fly	Colombia (Arevalo-Penaranda & Osorio-Ospina, 1995)	No		Yes
<i>Metamasius callizona</i> (Chevrolat) Syn. = <i>Metamasius callizoma</i> (sic) (MAF NZ, 1999b) [Coleoptera: Curculionidae]	weevil	Ecuador (MAF NZ, 1999b); Mexico, Guatemala, Panama, USA (Florida) (Frank & Thomas, 1994)	No		Yes
<i>Metamasius dimidiatipennis</i> (Jekel) Syn. = <i>M. dimidiatipennis</i> (sic) (NZ MAF, 1999b) [Coleoptera: Curculionidae]	weevil	Trinidad & Tobago (Schotman, 1989); Venezuela (Salas <i>et al.</i> , 1996)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Metamasius hemipterus</i> Linnaeus, 1758 [Coleoptera: Curculionidae]	weevil	Antigua & Barbuda, Argentina, Belize, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, French Guiana, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Nicaragua, Panama, Puerto Rico, Saint Kitts & Nevis, Saint Vincent & the Grenadines, Suriname, Trinidad & Tobago, Uruguay, Venezuela (Vaurie, 1966); Barbados (Anon., 1945); Bolivia (Vaurie, 1966; Woodruff & Baranowski, 1985); Brazil (Guagliumi <i>et al.</i> , 1974); Cameroon (Lepesme & Paulian, 1941; Nonveiller, 1969, 1984); Congo (Nonveiller, 1984); Cuba (Vaurie, 1966; Woodruff & Baranowski, 1985); Equatorial Guinea (Cotterell, 1963); Gabon (Cotterell, 1963; Lepesme & Paulian, 1941); Nigeria (Medler, 1980); Peru (Vaurie, 1966; Woodruff & Baranowski, 1985); Saint Lucia (Walters, 1927); USA (Florida) (Giblin-Davis <i>et al.</i> , 1996; Peña <i>et al.</i> , 1995; Sosa, 1995; Sosa <i>et al.</i> , 1997; Woodruff & Baranowski, 1985); United States Virgin Islands (Wilson, 1923) Quarantine interceptions: Indonesia (Kalimantan, 1904); Paraguay (1950); Philippines (1925) (CAB International, 2000); United Kingdom (Whitehead, 1991)	No		Yes
<i>Metamasius ritchiei</i> Marshall [Coleoptera: Curculionidae]	West Indian cane weevil	Jamaica (Marshall, 1916; Schotman, 1989)	No		Yes
<i>Metapocyrtus</i> sp. [Coleoptera: Curculionidae]	weevil borer; pineapple weevil	Philippines (Stephens, 1984)	No		Yes
<i>Mimegralla leucopeza albitarsis</i> Wiedemann [Diptera: Micropezidae]	stilt fly	Malaysia (Yunus & Ho, 1980)	No	Evenhuis, 1989	Yes
<i>Monomorium minutum</i> [Hymenoptera: Formicidae]	ant	Fiji (MAF NZ, 1999a); France (Clement <i>et al.</i> , 1986); Guam (Schreiner & Nafus, 1988)	No	Shattuck, 1999	Yes
<i>Mythimna convecta</i> (Walker, 1857) [Lepidoptera: Noctuidae]	common armyworm	Australia (Nielsen <i>et al.</i> , 1996; Waite, 1993)	Yes	Nielsen <i>et al.</i> , 1996; Waite, 1993	No
<i>Neodecadarchis flavistriata</i> Walsingham Syn. = <i>Decadarchis flavistriata</i> (Walsingham); <i>Ereunetis flavistriata</i> Walsingham [Lepidoptera: Tineidae]	sugarcane bud moth caterpillar	USA (Hawaii) (Heinz <i>et al.</i> , 1985; Zimmerman, 1978)	No	Nielsen <i>et al.</i> , 1996	Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Nysius clevelandensis</i> Evans [Hemiptera: Lygaeidae]	grey cluster bug	Australia (NSW, Qld) (Attia, 1973; Waite, 1993)	Yes	Attia, 1973; Waite, 1993	No
<i>Nysius vinitor</i> Bergroth [Hemiptera: Lygaeidae]	Rutherglen bug	Australia (Attia, 1973; Dillard <i>et al.</i> , 1993; McDonald & Farrow, 1988; Waite, 1993)	Yes	Attia, 1973; Dillard <i>et al.</i> , 1993; McDonald & Farrow, 1988; Waite, 1993	No
<i>Orthezia praelonga</i> Douglas, 1891 [Hemiptera: Ortheziidae]	croton bug; horned lamellated scale	Antigua & Barbuda, Barbados, Curaçao, Grenada, Guyana, Jamaica, Montserrat, Saint Kitts & Nevis, Saint Vincent, Suriname, Trinidad & Tobago (Schotman, 1989); Brazil (Cruz & Oliveira, 1979); Peru (Beingolea, 1971)	No	Miller <i>et al.</i> , 2001	Yes
<i>Oryctes rhinoceros</i> Linnaeus [Coleoptera: Scarabaeidae]	rhinoceros beetle	American Samoa, Burma, China (Hong Kong, Taiwan), Cocos Islands, Fiji, India, Indonesia, Malaysia, Maldives Islands, Mauritius, Pakistan, Palau, Papua New Guinea, Philippines, Réunion, Sri Lanka, Thailand, Tonga, Vietnam, Western Samoa (Bedford, 1980)	No	Bedford, 1980	Yes
<i>Oxya velox</i> (Fabricius, 1787) [Orthoptera: Acrididae]	rice field grasshopper; paddy field grasshopper	Bangladesh (Kabir & Begum, 1987); India (Muthukrishnan & Delvi, 1973); Korea, Republic of (Kim <i>et al.</i> , 1987); Pakistan (Irshad <i>et al.</i> , 1977); Philippines (BPI, 2000); South Korea (Pemberton, 1994)	No		Yes
<i>Pantomorus cervinus</i> (Boheman, 1840) Syn. = <i>Pantomorus godmani</i> (Crotch) [Coleoptera: Curculionidae]	Fuller's rose weevil	Europe, North America, South America, South Africa, New Zealand (CIE, 1966b)	Yes	CIE, 1966b; Field, 1979; James, 1991; Learmonth & Matthiessen, 1990; Miller, 1979	No
<i>Parasa lepida</i> (Cramer, 1799) Syn. = <i>Latoia lepida</i> Cramer, 1799 [Lepidoptera: Limacodidae]	blue-striped nettle grub; slug caterpillar	Bangladesh, Burma, China (Hong Kong), India, Indonesia (Java, Sumatra), Japan, Kampuchea, Laos, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam (CIE, 1986)	No	CIE, 1986	Yes
<i>Parasaissetia nigra</i> (Nietner, 1861) [Hemiptera: Coccidae]	pomegranate scale; nigra scale	Africa, Middle East, North America, Pacific Islands, South America, South & Southeast Asia (CABI/EPPO, 1997b)	Yes	Ben-Dov, 1993	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Paratrechina longicornis</i> (Latreille, 1802) [Hymenoptera: Formicidae]	crazy ant	Brazil (Bezerra-Coutinho, 1976); India (Venkataramaiah & Rehman, 1989); Philippines (BPI, 1999); United Kingdom (Cornwell, 1978); USA (Whitcomb <i>et al.</i> , 1972)	Yes	Naumann, 1993; Shattuck, 1999	No
<i>Paratrechina vaga</i> (Forel) [Hymenoptera: Formicidae]	ant	Fiji (MAF NZ, 1999a); Tahiti (Perrault, 1987)	Yes	Carver <i>et al.</i> , 1987; Shattuck, 1999	No
<i>Parisoschoenus ananasi</i> Moure, 1976 [Coleoptera: Curculionidae]	weevil	Brazil (Moure, 1976)	No		Yes
<i>Pheidole fervens</i> Smith [Hymenoptera: Formicidae]	ant	Fiji (MAF NZ, 1999a); Japan (Martin, 1992); Tahiti (Perrault, 1987); USA (Martinez, 1996)	No	Shattuck, 1999	Yes
<i>Pheidole megacephala</i> (Fabricius, 1793) [Hymenoptera: Formicidae]	big-headed ant	USA (Hawaii) (Beardsley <i>et al.</i> , 1982; McEwen <i>et al.</i> , 1976; Rohrbach & Schmitt, 1994)	Yes	Naumann, 1993; Shattuck, 1999	No
<i>Pheidole oceanica</i> Mayr [Hymenoptera: Formicidae]	ant	Cook Islands, Ellice Islands, Marquesas Islands, Samoa, Tahiti (Wilson & Taylor, 1967); Fiji (MAF NZ, 1999a)	Yes	Shattuck, 1999	No
<i>Phenacoccus madeirensis</i> Green, 1923 [Hemiptera: Pseudococcidae]	cassava mealybug	Angola, Antigua, Bahamas, Barbados, Bermuda, Bolivia, Brazil, Cameroon, Cape Verde, Cayman Islands, Colombia, Costa Rica, Côte d'Ivoire, Cuba, Dominica, Dominican Republic, Ecuador, Gambia, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Italy, Jamaica, Liberia, Mexico, Montserrat, Mozambique, Nigeria, Panama, Paraguay, Peru, Portugal (Madeira), Puerto Rico, Saint Kitts & Nevis, Saint Lucia, Senegal, Sierra Leone, Trinidad & Tobago, USA, Venezuela, Virgin Islands, Zimbabwe (Ben-Dov, 1994)	No	Ben-Dov, 1994	Yes
<i>Phenacoccus solani</i> Ferris, 1918 [Hemiptera: Pseudococcidae]	solanum mealybug	Brazil, Curacao, Ecuador, Gilbert Islands, Guatemala, Kiribati, Marshall Islands, Mexico, Peru, Puerto Rico, South Africa, Trinidad, USA (Hawaii), Venezuela, Zimbabwe (Ben-Dov, 1994); South Africa (Willers, 1992b)	No	Ben-Dov 1994	Yes
<i>Phyllocoptruta sakimurae</i> Kiefer, 1966 [Acarina: Eriophyidae]	blister mite	Philippines (BPI, 2000); USA (Hawaii) (Amrine & Stasny, 1994)	No	Halliday, 1998	Yes

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<i>Phyllophaga hogardi</i> (Blanchard, 1850) [Coleoptera: Scarabaeidae]	beetle	Dominican Republic (Chalumeau, 1980; Schotman, 1989)	No		Yes
<i>Phyllophaga pleei</i> (Blanchard) [Coleoptera: Scarabaeidae]	beetle	Dominican Republic (Schotman, 1989); Guadeloupe, Martinique, Puerto Rico (Chalumeau, 1980; Schotman, 1989); USA (Florida) (Grissell, 1977)	No		Yes
<i>Pinnaspis buxi</i> (Bouché) [Hemiptera: Diaspididae]	scale	China (Song <i>et al.</i> , 1989); Cook Islands, Fiji, French Polynesia, Indonesia, Papua New Guinea, Solomon Islands, Tonga, Western Samoa (Williams & Watson, 1988a); Dominican Republic (SANINET, 2001); São Tomé (Fernandez, 1974)	Yes	Williams & Watson, 1988a	No
<i>Planococcus citri</i> (Risso, 1813) [Hemiptera: Pseudococcidae]	citrus mealybug	Cosmopolitan (CABI/EPPO, 1999e)	Yes	Ben-Dov, 1994; CABI/EPPO, 1999e; Williams, 1985	No
<i>Planococcus minor</i> Maskell Syn. = <i>Planococcus pacificus</i> Cox; <i>Pseudococcus minor</i> [Hemiptera: Pseudococcidae]	Pacific mealybug	American Samoa, Cook Islands, Fiji, French Polynesia, Irian Jaya, Kiribati, New Caledonia, Niue, Papua New Guinea, Solomon Islands, Tokelau, Tonga, Vanuatu, Western Samoa (Williams & Watson, 1988b); Bangladesh (Boucek & Bhuiya, 1990); India (Gautam, 1990); Philippines (Sugimoto, 1994)	Yes	Williams, 1985	No
<i>Polistes</i> sp. [Hymenoptera: Vespidae]	paper wasp	Brazil (Costa & Lordello, 1988)	No (genus is present in Australia)	Taylor <i>et al.</i> , 1985	Yes
<i>Protaetia fusca</i> (Herbst) [Coleoptera: Scarabaeidae]	mango flower beetle	Bahamas, Barbados, USA (Schotman, 1989); China (Hong Kong), Singapore (APPPC, 1987)	Yes	Simpson, 1990	No
<i>Pseudaphycus dysmicocci</i> Bennett [Hemiptera: Pseudococcidae]	parasitic wasp	Trinidad & Tobago (Schotman, 1989)	No		Yes

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<i>Pseudococcus jackbeardsleyi</i> Gimpel & Miller, 1996 [Hemiptera: Pseudococcidae]	Jack Beardsley mealybug	Aruba, Bahamas, Barbados, Belize, Brazil, Canada, Caroline Islands, China (Taiwan), Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Martinique, Mexico, Panama, Puerto Rico, Saint Martin, Singapore, Trinidad & Tobago, Turks & Caicos Islands, United States Virgin Islands, Venezuela (Gimpel & Miller, 1996); Bolivia, Guyana, Nicaragua (Williams & Granara de Willink, 1992); Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Philippines, Thailand, Tuvalu (Williams, 1988); Jamaica (Beardsley, 1986); Kiribati (Williams & Watson, 1988b); USA (Gimpel & Miller, 1996; Nakahara, 1981)	No	Gimpel & Miller, 1996	Yes
<i>Pseudococcus longispinus</i> (Targioni Tozzetti, 1867) [Hemiptera: Pseudococcidae]	long-tailed mealybug	Cosmopolitan (Ben-Dov, 1994; Williams & Watson, 1988b)	Yes	Ben-Dov, 1994; Williams, 1985	No
<i>Pseudococcus</i> sp. [Hemiptera: Pseudococcidae]	mealybug	Malaysia (Yunus & Ho, 1980)	? (genus is present in Australia)	Ben-Dov, 1994	Yes
<i>Pycnoscelus surinamensis</i> (Linnaeus, 1758) [Blattodea: Blaberidae]	Suriname cockroach	Brazil (Matthiesen, 1988); Canada (Belton <i>et al.</i> , 1986); Canary Islands (Gangwere <i>et al.</i> , 1972); China (Woo, 1987) (Taiwan (Yang <i>et al.</i> , 1995)); Cuba (Armas <i>et al.</i> , 1990); Denmark (Gade & Parker, 1997); Ecuador (Bonsall, 1995); Fiji (MAF NZ, 1999a); France (Grandcolas <i>et al.</i> , 1996); Galapagos Islands (Peck & Roth, 1992); India (Krishnamurthy & Sultana, 1976); Ireland (Nash & O'Connor, 1990); Italy (Bandi <i>et al.</i> , 1994); Japan (Kato, 1994); Malaysia (Zahedi <i>et al.</i> , 1982); Mexico (Palacios & Jimenez, 1997); Netherlands (Cazemier <i>et al.</i> , 1997); Papua New Guinea (Humphrey, 1984); Poland (Petryszak, 1984); Seychelles (Roth, 1996); Sweden (Niklasson & Parker, 1994); Thailand (Choovivathanavanich, 1974); Venezuela (Ramirez-Perez, 1989); Vietnam (Luc & Spiridonov, 1993); United Kingdom (Moore & Crompton, 1993); West Indies (Roth, 1994); USA (Roth, 1974) (Hawaii (Toyama <i>et al.</i> , 1986))	Yes	Roach & Rentz, 1998	No
<i>Pyroderces rileyi</i> (Walsingham, 1882) [Lepidoptera: Cosmopterigidae]	pink corn worm	Egypt (Oshaibah <i>et al.</i> , 1986); South Africa (Jager & Daneel, 1999); Thailand (Saito, 1992); USA (McMillan <i>et al.</i> , 1982)	Yes	Naumann, 1993; Nielsen <i>et al.</i> , 1996	No
<i>Rhabdoscelus obscurus</i> (Boisduval) [Coleoptera: Curculionidae]	cane weevil borer	Japan (Takahashi, 1997); Papua New Guinea (Kuniata & Young, 1993); USA (Hawaii) (Olson, 1971); Western Samoa (Dharmaraju <i>et al.</i> , 1979)	Yes	Robertson <i>et al.</i> , 1995; Waite, 1993	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Rhinoseius braziliensis</i> (Baker & Yunker) [Acarina: Ascidae]	mite	Brazil (Sanches & Flechtmann, 1982)	No	Halliday, 1998	Yes
<i>Rhizoecus americanus</i> (Hambleton, 1946) [Hemiptera: Pseudococcidae]	American ground mealybug	Colombia, Costa Rica, Cuba, Ecuador, Honduras, Jamaica, Mexico, Panama, Puerto Rico (Vieques Island), Sicily, Trinidad & Tobago, USA (Florida), United States Virgin Islands (Ben-Dov, 1994); Italy (Russo & Mazzeo, 1992); Martinique (Ben-Dov, 1994; Schotman, 1989); Thailand (Williams, 1985)	No	Ben-Dov, 1994	Yes
<i>Rhopaea</i> sp. [Coleoptera: Scarabaeidae]	white grub	Australia (Qld) (Waite, 1993)	Yes	Waite, 1993	No
<i>Rhynchophorus palmarum</i> (Linnaeus, 1758) [Coleoptera: Curculionidae]	South American palm weevil; American palm weevil; palm weevil	Argentina, Bolivia, Brazil, British Honduras, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Surinam, Uruguay, Venezuela, West Indies (CIE, 1969a)	No	CIE, 1969a	Yes
<i>Saccharicoccus sacchari</i> (Cockerell, 1895) [Hemiptera: Pseudococcidae]	pink sugarcane mealybug; pink mealybug	Cosmopolitan (Ben-Dov, 1984)	Yes	Allsopp <i>et al.</i> , 1993; Ben-Dov, 1994; Williams, 1985	No
<i>Schedorhinotermes intermedius</i> (Brauer) [Isoptera: Rhinotermitidae]	wet wood termite	Australia (Heather, 1974, Miller, 1994)	Yes	Heather, 1974, Miller, 1994	No
<i>Schizotetranychus asparagi</i> (Oudemans, 1928) [Acarina: Tetranychidae]	mite	Australia (Bolland <i>et al.</i> , 1998)	Yes	Bolland <i>et al.</i> , 1998	No
<i>Scutigerella immaculata</i> Newport Syn. = <i>S. immaculata</i> (sic) (SANINET, 2001) [Symphyla: Scutigerellidae]	symphylid	Cosmopolitan e.g. Dominican Republic (SANINET, 2001), New Zealand (Ryan, 1974), United Kingdom (MAFF, 1973), USA (Simigrai & Barry, 1974)	Yes	AICN, 2001	No
<i>Solenopsis geminata</i> (Fabricius) [Hymenoptera: Formicidae]	tropical fire ant	India (Kumatar, 1988); Philippines (BPI, 2000); USA (Hawaii) (Rohrbach & Schmitt, 1994); mainland USA (Guyette, 1996)	Yes	Shattuck, 1999	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Solenopsis</i> sp. [Hymenoptera: Formicidae]	ant	Brazil (Costa & Lordello, 1988); Guyana (Nakasone & Paull, 1998; Rai & Sinha, 1980); Thailand (Wongsathuaythong <i>et al.</i> , 1977)	? (genus is present in Australia)	Shattuck, 1999	Yes
<i>Spodoptera exempta</i> (Walker) Syn. = <i>Agrotis exempta</i> Walker, 1856; <i>Laphygma exempta</i> Hampson, 1909; <i>Prodenia exempta</i> Walker, 1857; <i>Prodenia ingloria</i> Walker, 1858; <i>Leucania exempta</i> [Lepidoptera: Noctuidae]	dayfeeding armyworm; variegated armyworm; leaf-eating grassworm	Africa, India, Indonesia, Malaysia, Philippines, USA (Hawaii) (CIE, 1972a; Haggis, 1984)	Yes	Broadley, 1978; CIE, 1972a; Ironside, 1979	No
<i>Spodoptera exigua</i> Hübner [Acarina: Tarsonemidae]	lesser armyworm	Africa, Europe, Middle East, North America, South Asia, Southeast Asia (CIE, 1972b)	Yes	Anon., 1981; CIE, 1972b; Goodyer, 1983	No
<i>Steneotarsonemus ananas</i> (Tyron, 1988) [Acarina: Tarsonemidae]	pineapple fruit mite; leathery pocket mite	Philippines (BPI, 2000); South Africa (Petty, 1975); USA (Hawaii) (Rohrbach & Schmitt, 1994)	Yes	Halliday, 1998; Waite, 1993	No
<i>Stenocatantops splendens</i> (Thunberg) [Orthoptera: Acrididae]		Burma, China (Taiwan), India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand, Vietnam (Willemse, 1968); Caroline & Marianas Islands (Nafus <i>et al.</i> , 1999); China (Shen <i>et al.</i> , 1998); Sri Lanka (Krombein & Pulawski, 1986)	No	Willemse, 1968	Yes
<i>Stephanoderes</i> sp. [Coleoptera: Scolytidae]	fruit borer	Malaysia (Yunus & Ho, 1980)	No		Yes
<i>Strategus anachoreta</i> (Burmeister) [Coleoptera: Scarabaeidae]	rhinoceros beetle	Cuba, Trinidad & Tobago (Schotman, 1989)	No		Yes
<i>Strategus jugurtha</i> Burmeister [Coleoptera: Scarabaeidae]	rhinoceros beetle	Guyana (Schotman, 1989); Panama (Ratcliffe, 2001)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Strategus julianus</i> (Burmeister) [Coleoptera: Scarabaeidae]	rhinoceros beetle	Trinidad & Tobago (Schotman, 1989)	No		Yes
<i>Strymon megarus</i> (Godart) Syn. = <i>Thecla basilides</i> Geyer; misidentified as <i>Tmolus echion</i> (Linnaeus) [Lepidoptera: Lycaenidae]	pineapple caterpillar; fruit boring caterpillar	Caribbean, Central America, Mexico, South America (Nakasone & Paull, 1998); Brazil (Sanches <i>et al.</i> , 1985); Costa Rica (Rhains <i>et al.</i> , 1996); Trinidad (Marie, 1995)	No	Nielsen <i>et al.</i> , 1996	Yes
<i>Tapinoma melanocephalum</i> (Fabricius) [Hymenoptera: Formicidae]	ghost ant	Brazil (Fowler <i>et al.</i> , 1993); Canada (Ayre, 1977); Fiji (MAF NZ, 1999a); Germany (Scheurer, 1984); India (Taneja & Taneja, 1984)	Yes	Andersen & Reichel, 1994; Shattuck, 1999	No
<i>Technomyrmex albipes</i> (Smith) [Hymenoptera: Formicidae]	white-footed ant	Papua New Guinea (Room, 1975); Sri Lanka (Sulaiman <i>et al.</i> , 1997)	Yes	Naumann, 1993; Shattuck, 1999	No
<i>Telegryllus oceanicus</i> (Le Guillou) [Orthoptera: Gryllidae]		Canada (Givois & Pollack, 2000); Caroline & Marianas Islands (Nafus <i>et al.</i> , 1999); Germany (Huger, 1985); USA (Kolluru, 1999)	Yes	Reinganum <i>et al.</i> , 1970	No
<i>Tetranychus</i> sp. [Acarina: Tetranychidae]	spider mite	South Africa (Willers, 1992a); genus is cosmopolitan (Bolland <i>et al.</i> , 1998)	?	Halliday, 1998	Yes
<i>Thlastocoris laetus</i> Mayr, 1866 [Hemiptera: Coreidae]	bug	Brazil; Peru, Venezuela (Brailovsky, 1990)	No		Yes
<i>Thrips tabaci</i> Lindeman, 1888 [Thysanoptera: Thripidae]	onion thrips	India (Butani, 1975); USA (Hawaii) (Nakasone & Paull, 1998); cosmopolitan (CIE, 1969b)	Yes	CIE, 1969b; Mound, 1996	No
<i>Trachyderes succinctus</i> (Linnaeus, 1758) [Coleoptera: Cerambycidae]	longhorn beetle	Guyana, Suriname, Trinidad & Tobago (Schotman, 1989)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Tribolium castaneum</i> (Herbst) [Coleoptera: Tenebrionidae]	red flour beetle	Malaysia (Yunus & Ho, 1980); cosmopolitan (Hill, 1975)	Yes	Bengtson <i>et al.</i> , 1975; Wallbank & Greening, 1976	No
<i>Trigona spinipes</i> (Fabricius, 1793) [Hymenoptera: Apidae]	stingless bee	Brazil (Costa & Lordello, 1988)	No		Yes
<i>Trionymus internodii</i> (Hall, 1923)	mealybug	Egypt (Ben-Dov, 1994); Israel (Ben-Dov, 1980; 1994)	No	Ben-Dov, 1994	Yes
<i>Trochalus politus</i> Moser [Coleoptera: Scarabaeidae]	root feeding beetle	South Africa (Petty 1977; Smith <i>et al.</i> , 1995)	No		Yes
<i>Tyroglyphus ananas</i> Tyron, 1898		Australia (Tryon, 1898)	Yes	Tryon, 1898	No
<i>Tyrophagus putrescentiae</i> (Schränk, 1781) [Acarina: Acaridae]	cereal mite	Brazil (Sanches & Flechtman, 1982); cosmopolitan (Hughes, 1976)	Yes	Halliday, 1998	No
<i>Unaspis citri</i> (Comstock, 1883) [Hemiptera: Diaspididae]	citrus snow scale; white louse scale	Antigua & Barbuda, Argentina, Barbados, Benin, Bermuda, Brazil (Rio Grande do Sul, Rio de Janeiro, São Paulo), British Virgin Islands, Chile, China (Guangdong, Hong Kong, Hubei), Colombia, Congo, Côte d'Ivoire, Cuba, Dominica, Dominican Republic, Ecuador, Fiji, Grenada, Guadeloupe, Guinea, Guyana, Haiti, Indonesia (Java), Jamaica, Malaysia (Peninsular Malaysia), Mauritius, Mexico, Montserrat, New Caledonia, New Zealand, Nigeria, Panama, Paraguay, Peru, Portugal (Azores), Puerto Rico, Saint Kitts & Nevis, Saint Lucia, Saint Vincent & the Grenadines, Samoa, Sierra Leone, Singapore, Solomon Islands, Togo, Tonga, Trinidad & Tobago, USA (California, Florida, Georgia, Louisiana), United States Virgin Islands, Uruguay, Venezuela, Vietnam, Wallis & Futuna Islands (CIE, 1962); Cook Islands, Fiji, Kiribati, New Caledonia, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu (Williams & Watson, 1988a); Niger (EPPO, 1999)	Yes	CIE, 1962; Smith & Papacek, 1990	No
<i>Valanga nigricornis</i> (Burmeister, 1838) [Orthoptera: Acrididae]	grasshopper	Brunei Darussalam, Indonesia, Philippines, Thailand, Vietnam (Waterhouse, 1993); India (Gope & Prasad, 1983); Malaysia (Waterhouse, 1993; Yunus & Ho, 1980); Singapore (APPPC, 1987; Waterhouse, 1993)	No		Yes
<i>Zonocerus elegans</i> (Thunberg, 1815) [Orthoptera: Pyrgomorphidae]	elegant grasshopper	Angola, Botswana, Congo, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Uganda, Zambia, Zimbabwe (Anon., 1972a); Tanzania (Bohlen, 1973; Nyambo, 1991)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Zonocerus variegatus</i> (Linnaeus, 1758) [Orthoptera: Pyrgomorphidae]	variegated grasshopper	Angola, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Malawi, Mali, Niger, Rwanda, Senegal, Sierra Leone, Togo (Chiffaud & Mestre, 1990); Côte d'Ivoire (Affognon & Castel, 1979; Chiffaud & Mestre, 1990); Nigeria (Chapman & Page, 1979; Chiffaud & Mestre, 1990)	No		Yes
Gastropoda					
<i>Bradybaena similaris</i> (Férussac, 1821) [Stylommatophora: Bradybaenidae]	Asian tramp snail	Southeast Asia (Dundee, 1974); Bermuda, Brazil, Bahamas, China (Hong Kong, Taiwan), Germany, Japan, Mauritius, French Polynesia, Singapore, USA (Hawaii), Vietnam (Schotman, 1989)	Yes	Stanisic, 1998	No
<i>Cecilioides aperta</i> (Swainson, 1840) [Stylommatophora: Ferussaciidae]		Nicaragua (Thompson & Al López, 2001)	No		Yes
<i>Opeas pumilum</i> (Pfeiffer, 1822) [Gastropoda: Subulinidae]		Germany (Benecke & Kappes, 2001)	No		Yes
Nematoda					
<i>Aphelenchoides</i> sp. [Aphelenchida: Aphelenchoididae]	nematode		?		Yes
<i>Aphelenchus eremitus</i> Thorne, 1961 [Aphelenchida: Aphelenchoididae]	nematode	Thailand (Giatgong, 1980)	No		Yes
<i>Aulosphora oostenbrinki</i> (Luc, 1958) Siddiqi, 1980 Syn. = <i>Hemicyclophora oostenbrinki</i> Luc, 1958 [Tylenchida: Criconematidae]	nematode		?		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Caloosia longicaudata</i> (Loos, 1948) Syn. = <i>Caloosia paralongicaudata</i> Siddiqi & Goodey, 1963 [Tylenchida: Criconematidae]	nematode	India (Nath <i>et al.</i> , 1998)	No		Yes
<i>Criconema ananas</i> Siddiqi [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconema octangulare</i> (Cobb, 1914) Taylor, 1936 [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconemella onoense</i> (Luc) Luc & Raski, 1981 Syn. = <i>Mesocriconema onoense</i> (Luc, 1959) Loof & de Grisse, 1989 [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconemella ornata</i> (Raski, 1958) Luc & Raski, 1981 Syn. = <i>Mesocriconema ornata</i> (Raski, 1958) Loof & de Grisse, 1989 [Tylenchida: Criconematidae]	ring nematode	Australia (Qld) (Stirling, 1993); India (Rama & Dasgupta, 1987)	Yes	Stirling, 1993	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Criconemella peruensis</i> (Steiner, 1920) Luc & Raski, 1981 Syn. = <i>Mesocriconema peruensis</i> (Steiner, 1920) Loof & de Grisse, 1965 [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconemella rustica</i> Micoletzky, 1915 Syn. = <i>Mesocriconema rustica</i> (Micoletzky, 1915) Loof & de Grisse, 1989; <i>Criconema quadricorne</i> Kirjanova, 1948 [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconemella xenoplax</i> (Raski, 1952) Luc & Raski, 1981 Syn. = <i>Mesocriconema xenoplax</i> (Raski, 1958) Loof & de Grisse, 1989 [Tylenchida: Criconematidae]	ring nematode	India (Rama & Dasgupta, 1987); Africa, Australia, Europe, North America, South America, India, Japan (http://ucdnema.ucdavis.edu/imagemap/nemmap/Ent156html/nemas/criconemellaxenoplax)	Yes	McLeod <i>et al.</i> , 1994	No
<i>Criconemoides complexus</i> Jairajpuri, 1963 [Tylenchida: Criconematidae]	ring nematode	China (Guangxi) (Liu & Feng, 1995)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Criconemoides curvatum</i> Raski, 1952 Syn. = <i>Mesocriconema curvatum</i> (Raski, 1952) Loof & de Grisse, 1989 [Tylenchida: Criconematidae]	ring nematode	Thailand (Giatgong, 1980)	No		Yes
<i>Criconemoides ferniae</i> Luc, 1959 Syn. = <i>Criconemella ferniae</i> (Luc, 1959) Luc & Raski, 1981; <i>Mesocriconema ferniae</i> (Luc, 1959) Loof & de Grisse, 1965 [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Criconemoides helicus</i> Eroshenko & Thanh, 1981 [Tylenchida: Criconematidae]	ring nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
<i>Ditylenchus destructor</i> [Tylenchida: Dorylaimidae]	nematode		?		Yes
<i>Dorylaimus pacificus</i> [Tylenchida: Dorylaimidae]	nematode		?		Yes
<i>Dorylaimus</i> sp. [Tylenchida: Dorylaimidae]	nematode	Brazil (Cavalcante <i>et al.</i> , 1984)	No		Yes
<i>Helicotylenchus africanus</i> [Tylenchida: Hoplolaimidae]	nematode		?		Yes
<i>Helicotylenchus cavenessi</i> Sher, 1966 [Tylenchida: Hoplolaimidae]	spiral nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Helicotylenchus certus</i> Eroshenko & Nguen Vu Thanh, 1981 [Tylenchida: Haplaimidae]	spiral nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
<i>Helicotylenchus concavus</i> [Tylenchida: Haplaimidae]	nematode		?		Yes
<i>Helicotylenchus digonicus</i> Perry, in Perry, Darling & Thorne, 1959 [Tylenchida: Haplaimidae]	spiral nematode	Thailand (Ratanaprapa & Boonduang, 1975)	No		Yes
<i>Helicotylenchus dihystra</i> (Cobb, 1893) Sher, 1961 Syn. = <i>Tylenchus dihystra</i> Cobb, 1893; <i>Tylenchus</i> <i>olae</i> Cobb, 1906; <i>Tylenchus spiralis</i> Cassidy, 1930; <i>Aphelenchus dubius</i> var. <i>peruensis</i> Steiner, 1920; <i>Helicotylenchus crenatus</i> Das, 1960; <i>Helicotylenchus</i> <i>flatus</i> Roman, 1965; <i>Helicotylenchus nannus</i> Steiner, 1945; <i>Helicotylenchus</i> <i>paraconcavus</i> Rashid & Khan, 1974; <i>Helicotylenchus</i> <i>punicae</i> Swarup & Sethi, 1968 [Tylenchida: Haplaimidae]	common spiral nematode	Angola (Siddiqi, 1972a); Brazil (Goes <i>et al.</i> , 1982a, c; Monteiro & Lordello, 1976; Zem <i>et al.</i> , 1984); Burkina Faso (Cadet, 1986a, b); Cameroon (Ali & Geraert, 1975); Canada (Sher, 1966; Townshend, 1984); Chile (Gallo, 1979); China (Li, 1994; Xu <i>et al.</i> , 1994; Yin, 1992; Zhou, 1996); Colombia (Trevathan <i>et al.</i> , 1985); Congo Democratic Republic (Ali <i>et al.</i> , 1973); Costa Rica (Chen-Guardia, 1972); Côte d'Ivoire (Sher, 1966; Fortuner & Quenéhervé, 1980); Dominica (Hunt, 1977); El Salvador (Sher, 1966); Fiji (Kirby <i>et al.</i> , 1980; Sher, 1966; Siddiqi, 1972a; Orton-Williams, 1980); Germany (Braasch, 1987); Grenada (Hunt, 1977); Guatemala (Sher, 1966); India (Nagesh <i>et al.</i> , 1994; Nath <i>et al.</i> , 1998; Phukan <i>et al.</i> , 1981; Rama & Dasgupta, 1987); Indonesia (Sher, 1966); Iran (Ali <i>et al.</i> , 1973); Israel (Sher, 1966); Japan (Sano, 1982; Sher, 1966); Kenya (Sher, 1966); Liberia (Sher, 1966); Madagascar (Sher, 1966); Malaysia (Sauer & Winoto, 1975; Sher, 1966; Siddiqi, 1972a); Malawi (Siddiqi, 1972a); Martinique (Cadet, 1990); Mauritius (Chinappen <i>et al.</i> , 1988); Mexico (Zavaleta-Mejia & Sosa-Moss, 1978, 1979); Morocco (Sher, 1966); New Zealand (Wouts & Yeates, 1994); Nigeria (Ali <i>et al.</i> , 1973; Caveness, 1967; Sher, 1966; Siddiqi, 1972a); Niue (Orton-Williams, 1980); Pakistan (Firoza & Maqbool, 1995, 1996; Maqbool, 1992); Panama (Sher, 1966); Peru (Sher, 1966; Steiner, 1920); Portugal (Sher, 1966; Siddiqi, 1972a); Puerto Rico (Sher, 1966); Romania (Ivan, 1978); Saint Lucia (Hunt, 1977); Saint Vincent & the Grenadines (Hunt, 1977); Senegal (Cadet & Floret, 1995; Sher, 1966); South Africa (Sher, 1966; Van den Berg & Heyns, 1975; Willers & Neethling, 1994); Spain (Pinochet & Cisneros, 1986); Sri Lanka (Sher, 1966); Sudan (Zeidan & Geraert, 1990); Thailand (Mizukubo <i>et al.</i> , 1992; Ratanaprapa & Boonduang, 1975); Tonga (Orton-Williams, 1980); Trinidad & Tobago (Singh, 1976); United Kingdom (Peachey & Hooper, 1963); USA (Cuarezma-Terán, 1985; Ko & Schmitt, 1996; Mead 1988, 1989; Rodríguez-Kabana <i>et al.</i> , 1974, 1975, 1976; Sher, 1966; Wrather <i>et al.</i> , 1992); Venezuela (Sher, 1966; Siddiqi, 1972a); Vietnam (Eroshenko & Thanh, 1981); West Africa (Baujard & Martiny, 1995); Zimbabwe (Siddiqi, 1972a)	Yes	Anderson, 1965; McLeod, 1979; Sher, 1966; Stirling & Nikulin, 1993	No

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<i>Helicotylenchus erythrinae</i> (Zimmermann, 1904) Golden, 1956 [Tylenchida: Hoplolaimidae]	spiral nematode	Thailand (Giatgong, 1980); Dominica (Schotman, 1989); Trinidad & Tobago (Schotman, 1989)	No		Yes
<i>Helicotylenchus laevicaudatus</i> Eroshenko & Nguen Vu Thanh, 1981 [Tylenchida: Hoplolaimidae]	spiral nematode	Vietnam (Eroshenko & Thanh, 1981)	Yes	CAB International, 2000	No
<i>Helicotylenchus multicinctus</i> (Cobb, 1893) Golden, 1956 Syn. = <i>Tylenchus multicinctus</i> Cobb, 1893; <i>Tylenchorhynchus multicinctus</i> (Cobb, 1893) Micoletzky, 1922; <i>Anguillulina multicincta</i> (Cobb, 1893) T. Goodey, 1932; <i>Rotylenchus multicinctus</i> (Cobb, 1893) Filipjev, 1936; <i>Rotylenchus iperoiguensis</i> Carvalho, 1956; <i>Helicotylenchus iperoiguensis</i> (Carvalho, 1956) Andrassy, 1958 [Tylenchida: Hoplolaimidae]	banana spiral nematode	Angola (Siddiqi, 1973); Antigua & Barbuda (Schotman, 1989); Argentina (Costilla <i>et al.</i> , 1979); Bangladesh (Sher, 1966); Belize (Siddiqi, 1973); Brazil (Siddiqi, 1973; Zem & Lordello, 1981); Brunei Darussalam (Siddiqi, 1973); Cameroon (Luc & Vilardebó, 1961); Colombia (Gomez-Tovar, 1980; Sher, 1966); Costa Rica (Sher, 1966); Côte d'Ivoire (Luc & Vilardebó, 1961; Sher, 1966; Siddiqi, 1973); Cuba (Siddiqi, 1973; Stoyanov, 1967a); Cyprus (Philis, 1971; Siddiqi, 1973); Dominica (Schotman, 1989); Dominican Republic (Sher, 1966; Siddiqi, 1973); El Salvador (Sher, 1966; Wehunt & Edwards, 1968); Ethiopia (Siddiqi, 1973); Fiji (Siddiqi, 1973); French Guiana (Luc & Vilardebó, 1961); Grenada (Schotman, 1989); Guatemala (Sher, 1966); Honduras (Sher, 1966; Pinochet & Ventura, 1980); India (Mukherjee & Dasgupta, 1983; Sher, 1966; Siddiqi, 1973); Israel (Strich-Harari <i>et al.</i> , 1966); Italy (restricted distribution) (Vovlas, 1983a); Jamaica (Hutton <i>et al.</i> , 1978; Siddiqi, 1973); Lebanon (Sikora & Shlosser, 1973); Madagascar (Luc, 1959; Vilardebó & Guérout, 1976); Malawi (Siddiqi, 1973); Malaysia (Sher, 1966); Mexico (Wehunt & Edwards, 1968); Nicaragua (Wehunt & Edwards, 1968); Nigeria (Caveness & Badra, 1980; Siddiqi, 1973); Spain (Canary Islands) (de Guiran & Vilardebó, 1963); Pakistan (Siddiqi, 1973); Panama (Sher, 1966; Wehunt & Edwards, 1968); Papua New Guinea (Bridge & Page, 1984; Troccoli & Geraert, 1995); Peru (Krusberg & Hirschman, 1958); Philippines (Sher, 1966); Réunion (Vilardebó & Guérout, 1976); Saint Lucia (Schotman, 1989); Saint Vincent & the Grenadines (Schotman, 1989); Samoa (Siddiqi, 1973); São Tomé & Príncipe (Vovlas <i>et al.</i> , 1994b); Seychelles (Siddiqi, 1973); South Africa (Van den Berg & Heyns, 1975); Sri Lanka (Siddiqi, 1973); Suriname (Maas, 1969; Siddiqi, 1973); Trinidad & Tobago (Bala, 1984); Tunisia (Sher, 1966); Uganda (Siddiqi, 1973); United Kingdom (Siddiqi, 1973); USA (Hutchinson <i>et al.</i> , 1961; May <i>et al.</i> , 1960; McSorley & Parrado, 1983; Minton <i>et al.</i> , 1963; Sher, 1966); Venezuela (Siddiqi, 1973); West Africa (Luc & Vilardebó, 1961; Vilardebó & Guérout, 1976); Zambia (Martin, 1958; Siddiqi, 1973); Zimbabwe (Martin, 1958; Siddiqi, 1973)	Yes	Blake, 1961; Broadley, 1979; Colbran & Saunders, 1961	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Helicotylenchus notabilis</i> Eroshenko & Nguen Vu Thanh, 1981	spiral nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
[Tylenchida: Hoplolaimidae]					
<i>Helicotylenchus pseudorobustus</i> (Steiner, 1914) Golden, 1956 Syn. = <i>Tylenchus pseudorobustus</i> Steiner, 1914; <i>Tylenchorynchus robustus</i> var. <i>pseudorobustus</i> (Steiner, 1914) Micoletzky, 1922; <i>Tylenchus</i> (<i>Tylenchorhynchus</i>) <i>pseudorobustus</i> Steiner, 1914; <i>Helicotylenchus microlobus</i> Perry in Perry <i>et al.</i> , 1956; <i>Helicotylenchus bradys</i> Thorne & Malek, 1968; <i>Helicotylenchus phalerus</i> Anderson, 1974	spiral nematode	Argentina (Vega & Galmarini, 1970); Austria (Sher, 1966); Belgium (Geraert, 1967); Brazil (Zem & Lordello, 1976); Canada (Anderson, 1974); Congo Democratic Republic (Ali <i>et al.</i> , 1973); Cuba (Decker <i>et al.</i> , 1970); Dominica (Edmunds, 1969); Finland (Kurppa, 1988); France (Sher, 1966); India (Lal & Khan, 1989; Swarup & Sethi, 1968); Iran (Kheiri, 1972); Israel (Sher, 1966); Italy (Mancini & Moretti, 1976); Korea, Democratic People's Republic (Choi, 1975); Korea, Republic of (Choi, 1975); Netherlands (Sher, 1966); New Zealand (Yeates, 1973; Yeates & Wouts, 1992); Nigeria (Bridge, 1972; Caveness, 1974); Poland (Brzescki, 1971); Portugal (Abrantes <i>et al.</i> , 1978); Saint Vincent & the Grenadines (Schotman, 1989); South Africa (Van den Berg & Heyns, 1975); Spain (Castillo <i>et al.</i> , 1993a, b); Thailand (Pholcharoen & Boonduang, 1972); Trinidad & Tobago (Schotman, 1989); United Kingdom (Jones, 1978); USA (Alby <i>et al.</i> , 1980; Castaner, 1966; Dickerson <i>et al.</i> , 1978; Donald & Hosford, 1980; Feldmesser & Golden, 1974; McSorley, 1978, 1979; Norton & Hoffmann, 1974; Ponchillia, 1975; Rebois & Golden, 1978; Schmitt & Norton, 1972; Sher, 1966; Siddiqui <i>et al.</i> , 1973; Thorne & Malek, 1968; Todd & Tisserat, 1990); Venezuela (Siddiqui, 1974b); Zambia (Lawn <i>et al.</i> , 1988a)	No		Yes
[Tylenchida: Hoplolaimidae]					
<i>Helicotylenchus rotundicauda</i> Sher, 1966	spiral nematode	Thailand (Ratanaprapa & Boonduang, 1975)	No		Yes
[Tylenchida: Hoplolaimidae]					
<i>Helicotylenchus</i> spp.	spiral nematode	India (Nath <i>et al.</i> , 1997)	No		Yes
<i>Hemicriconemoides cocophilus</i> (Loos) Chitwood & Birchfield	nematode		?		Yes
[Tylenchida: Criconematidae]					

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Hemicriconemoides mangiferae</i> Siddiqi, 1961 [Tylenchida: Criconematidae]	sheath nematode	Brazil (Sharma & Loof, 1977); China (Zhang, 1995); Dominica (Siddiqi, 1977); Ecuador (Bridge, 1976); Fiji (Siddiqi, 1977); Ghana (Germani & Luc, 1970); Grenada (Siddiqi, 1977); India (Baqri, 1978; Chaubey & Dwivedi, 1993; Deswal & Bajaj, 1987; Muthukrishnan, 1987; Phukan & Saikia, 1983; Rahman, 1987); Indonesia (Java) (Rashid <i>et al.</i> , 1988); Iran (Maafi & Kheiri, 1993); Israel (Pinochet & Raski, 1975); Korea, Republic of (Choi & Geraert, 1975b; Choi & Jeong, 1995); Mexico (Pinochet & Raski, 1975); New Caledonia (Germani & Anderson, 1991); Nigeria (Pinochet & Raski, 1975); Pakistan (Khan, 1978; Saeed & Ghaffar, 1979); Papua New Guinea (Decraemer & Geraert, 1992); Peru (Vovlas <i>et al.</i> , 1990); Philippines (Pinochet & Raski, 1975); Saint Lucia (Siddiqi, 1977); South Africa (Milne, 1982; Stokes, 1976); Sudan (Zeidan & Geraert, 1989); Thailand (Chunram, 1972; Pholcharoen <i>et al.</i> , 1972); Trinidad & Tobago (Bala, 1984); USA (Dasgupta <i>et al.</i> , 1969; Esser, 1992); Venezuela (Pinochet & Raski, 1975); Vietnam (Andrássy, 1970)	No		Yes
<i>Hemicriconemoides litchi</i> Edward & Misra, 1964 [Tylenchida: Criconematidae]	sheathoid nematode	China (Liu & Feng, 1995); India (Nath <i>et al.</i> , 1997); Thailand (Pholcharoen <i>et al.</i> , 1972)	No		Yes
<i>Hemicriconemoides squamosus</i> (Cobb) [Tylenchida: Criconematidae]	nematode		?		Yes
<i>Hemicyclophora epicharis</i> Raski, 1958 [Tylenchida: Criconematidae]	nematode	USA (Mead, 1989)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Heterodera schachtii</i> A. Schmidt, 1871 Syn. = <i>Tylenchus schachtii</i> (Schmidt, 1871) Oerley, 1880; <i>Heterodera schachtii minor</i> O. Schmidt, 1930; <i>Heterobolbus schachtii</i> (Schmidt, 1871) Railliet, 1896 [Tylenchida: Heteroderidae]	sugarbeet nematode	Algeria (CAB International, 2000); Argentina (EPPO, 1999); Austria (EPPO, 1999); Belgium (Simon, 1948); Bulgaria (restricted distribution) (Stoyanov, 1977); Canada (Brown, 1932); Cape Verde (Sturhan, 1994); Chile (Stone & Valenzuela, 1977); China (Guangdong) (Zhang & Huang, 1990); Croatia (CAB International, 2000); Denmark (Warming, 1897); Finland (Vappula, 1962); France (Chatin, 1891); Gambia (CAB International, 2000); Germany (Schacht, 1859); Greece (Ayoutantis <i>et al.</i>, 1951); India (Sethi <i>et al.</i>, 1972); Iran (Esmailpour & Schäfer, 1970); Iraq (CAB International, 2000); Ireland (Duggan, 1957); Israel (Minz, 1956a); Italy (Petri, 1931); Jordan (Bridge, 1978); Korea, Republic of (Choi & Geraert, 1975a); Libya (CAB International, 2000); Mexico (Sosa-Moss, 1987); Morocco (CAB International, 2000); Netherlands (Bos, 1892); New Zealand (Clark, 1963); Pakistan (CAB International, 2000); Peru (Krusberg & Hirschmann, 1958); Poland (Karpinski, 1895); Portugal (Noak, 1902; Oliveira & Branquinho, 1943); Spain (Bello & Romero, 1973); Romania (Pricina, 1910); Russian Federation (EPPO, 1999); Senegal (Luc & Netscher, 1974); South Africa (Coetzee, 1968); Sweden (Nilson-Ehle, 1903); Switzerland (Savary, 1954); Tunisia (Pagliano, 1925); Turkey (Franklin, 1972); United Kingdom (Staniland & Walton, 1928); Uruguay (Mesa & Alvarez-Argudin, 1974); USA (Bessey, 1911; Williams & Holtzmann, 1965); Yugoslavia (Former) (Grujicic, 1958)	Yes	Millikan, 1940	No
<i>Hoplolaimus champus</i> Sher [Tylenchida: Hoplolaimidae]	lance nematode	Vietnam (Eroshenko & Thanh, 1981)	Yes	AQIS, 2000	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Hoplolaimus pararobustus</i> (Schuurmans Stekhoven & Teunissen, 1938) Sher, 1963 Syn. = <i>Tylenchorhynchus pararobustus</i> Schuurmans Stekhoven & Teunissen, 1938; <i>Rotylenchus pararobustus</i> (Schuurmans Stekhoven & Teunissen, 1938) Filipjev & Schuurmans Stekhoven, 1941; <i>Gottholdsteineria pararobusta</i> (Schuurmans Stekhoven & Teunissen, 1938) Andrassy, 1958; <i>Hoplolaimus pararobustus</i> (Schuurmans Stekhoven & Teunissen, 1938) Sher, 1963; <i>Hoplolaimus angustulatus</i> Whitehead, 1959; <i>Hoplolaimus kittenbergeri</i> Andrassy, 1961; <i>Hoplolaimus casparus</i> Van den Berg & Heyns, 1970; <i>Hoplolaimus capensis</i> Van den Berg & Heyns, 1970 [Tylenchida: Hoplolaimidae]	lance nematode	Angola (EPPO, 1999); Burkina Faso (Cadet, 1986a, b); Cameroon (Luc & Vilardebó, 1961; Sakwe & Geraert, 1991); China (Liu & Feng, 1995); Congo Democratic Republic (Coomans, 1963; Schuurmans Stekhoven & Teunissen, 1938); Côte d'Ivoire (Luc & Vilardebó, 1961); Dominica (Edmunds, 1969); Egypt (Siddiqi, 1974a); Gambia (Bridge & Waller, 1978); Grenada (Edmunds, 1969); Guinea (Luc & Vilardebó, 1961); Madagascar (Saka & Siddiqi, 1979); Malawi (Saka & Siddiqi, 1979); Mozambique (Oever & Mangane, 1992); Nigeria (Caveness, 1967); Pakistan (Maqbool & Ghazala, 1988); Réunion (Vilardebó & Guerot, 1976); Saint Lucia (Hunt, 1977); Saint Vincent & the Grenadines (Hunt, 1977); São Tomé & Príncipe (Vovlas & Lamberti, 1985); South Africa (Siddiqi, 1974a; Van den Berg & Heyns, 1970); Sri Lanka (Larizza <i>et al.</i>, 1998); Tanzania (Whitehead, 1959)	No		Yes
<i>Hoplolaimus seinhorsti</i> Luc, 1958 Syn. = <i>Basirolaimus seinhorsti</i> (Luc, 1958) Shamsi, 1979; <i>Hoplolaimus sheri</i> Suryawanshi, 1971 [Tylenchida: Hoplolaimidae]	lance nematode	Egypt (Salem <i>et al.</i>, 1994); Fiji (Van den Berg & Kirby, 1979); French Guiana (Van den Berg & Cadet, 1991); Guatemala (Sher, 1963); Indonesia (CAB International, 2000); India (Chandrasekaran & Seshadri, 1969); Madagascar (Luc, 1958); Martinique (Van den Berg & Cadet, 1991); Nigeria (Bridge, 1973); Pakistan (Maqbool & Ghazala, 1988); Philippines (Timm, 1965); Réunion (Lamberti <i>et al.</i>, 1986); Sri Lanka (Lamberti <i>et al.</i>, 1993; Vovlas, 1983b); Sudan (Zeidan & Geraert, 1989); Thailand (Giatgong, 1980; Timm, 1965); Trinidad & Tobago (Baujard <i>et al.</i>, 1991); Vietnam (Eroshenko & Thanh, 1981); West Africa (http://compact.jouy.inra.fr/compact/CONSULTER/INTER/externe/unites/pages/1062_publications)	No		Yes
<i>Isolaimium stictachroum</i>	nematode		?		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Longidorus conicaudoides</i> Khan, 1987 (Homonym = <i>Longidorus conicaudatus</i> Jacobs & Heyns, 1987) [Dorylaimida: Longidoridae]	needle nematode	South Africa (Jacobs & Heynes, 1987)	No		Yes
<i>Longidoroides laevicapitatus</i> Williams	nematode		?		Yes
<i>Longidoroides lobus</i> Singh & Khan, 1997 [Dorylaimida: Longidoridae]	needle nematode	India (Singh & Khan, 1996)	No		Yes
<i>Macrolaimus natator</i>	nematode		?		Yes
<i>Macroposthonia magnifica</i> Eroshenko & Thanh, 1981 [Tylenchida: Criconematidae]	ring nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
<i>Meloidogyne acronea</i> Coetzee, 1956 Syn. = <i>Hypsoperine acronea</i> Sledge & Golden, 1964; <i>Hypsoperine (Hypsoperine) acronea</i> Siddiqi, 1986 [Tylenchida: Meloidogynidae]	African cotton root nematode	Bolivia (Cabanillas, 1985); Malawi (restricted distribution) (Bridge <i>et al.</i> , 1976); South Africa (restricted distribution) (Coetzee, 1956)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Meloidogyne arenaria</i> (Neal, 1889) Chitwood, 1949 Syn. = <i>Anguillula arenaria</i> Neal, 1889; <i>Tylenchus arenarius</i> (Neal, 1889) Cobb, 1890; <i>Heterodera arenaria</i> (Neal, 1889) Marcinowski, 1909; <i>Meloidogyne arenaria arenaria</i> (Neal, 1889) Chitwood, 1949; <i>Meloidogyne arenaria thamesi</i> Chitwood in Chitwood <i>et al.</i>, 1952; <i>Meloidogyne thamesi</i> (Chitwood <i>et al.</i>, 1952) Goodey, 1963 [Tylenchida: Meloidogynidae]	peanut root-knot nematode	Argentina (Taylor <i>et al.</i>, 1982); Azerbaijan (Treskova <i>et al.</i>, 1979); Bangladesh (Choudhury, 1981); Belgium (BGARC, 1972); Belize (Taylor <i>et al.</i>, 1982); Bermuda (Taylor <i>et al.</i>, 1982); Bolivia (Taylor <i>et al.</i>, 1982); Brazil (Antônio, 1982; Freire & Freire, 1978; Freire & Ponte, 1976; Huang & Costa Manso, 1982; Lemos & Ponte, 1978; Taylor <i>et al.</i>, 1982); Bulgaria (Stoyanov, 1980); Chile (Jiminez, 1982); China (Huan, 1983; Sun <i>et al.</i>, 1991; Tsai, 1981; Yang, 1984; Zhang & Weng, 1991); Colombia (Taylor <i>et al.</i>, 1982); Costa Rica (Lopez, 1984); Côte d'Ivoire (Egunjobi, 1985); Cuba (Fernandez & Ortega, 1983b); Ecuador (Cabanillas, 1985); Egypt (Taylor <i>et al.</i>, 1982); Fiji (Taylor <i>et al.</i>, 1982); France (Dalmasso, 1980); Gambia (Egunjobi, 1985); Germany (Zunke, 1981); Ghana (Egunjobi, 1985); Greece (Kolipanos, 1980); Guadeloupe (Taylor <i>et al.</i>, 1982); Guyana (Schotman, 1989); Hungary (Budai, 1980); Iceland (Siggeirsson & Riel, 1975); India (Abdullaeva, 1986; Khan & Khan, 1984; Kumar <i>et al.</i>, 1987; Sen & Dasgupta, 1977; Wajid-Khan <i>et al.</i>, 1984); Indonesia (Java, Sumatra (Hadisoeganda, 1981)); Iran (Ibrahim, 1985; Taylor <i>et al.</i>, 1982); Iraq (Ibrahim, 1985); Italy (Ibrahim, 1985); Jamaica (Sosa-Moss, 1985); Japan (Taylor <i>et al.</i>, 1982); Korea, Democratic People's Republic (Choi, 1981); Korea, Republic of (Choi, 1981); Lebanon (Macaron <i>et al.</i>, 1975); Libya (Khan, 1980); Malawi (Saka, 1985); Malaysia (Muhammad, 1992); Maldives (CAB International, 2000); Morocco (Taylor <i>et al.</i>, 1982); Mozambique (Martin & Armstrong, 1975); Nepal (Bhardwaj & Hogger, 1984); Netherlands (Brinkman, 1975); Nigeria (Egunjobi, 1985); Pakistan (Ahmad & Saeed, 1981); Papua New Guinea (Bridge & Page, 1984); Paraguay (Cabanillas, 1985); Peru (Taylor <i>et al.</i>, 1982); Philippines (Taylor <i>et al.</i>, 1982); Portugal (Taylor <i>et al.</i>, 1982); Puerto Rico (Taylor <i>et al.</i>, 1982); Romania (Romascu <i>et al.</i>, 1974); Russian Federation (Mar'enko, 1984); Senegal (Egunjobi, 1985); South Africa (Wyk, 1985); Spain (Marull <i>et al.</i>, 1984) (Canary Islands (Taylor <i>et al.</i>, 1982)); Sri Lanka (Lamberti <i>et al.</i>, 1993; Sivapalan, 1981); Sudan (Ibrahim, 1985); Suriname (Taylor <i>et al.</i>, 1982); Switzerland (Vallotton, 1981); Syria (Tayar, 1980); Tajikistan (Kulichin, 1981); Thailand (Taylor <i>et al.</i>, 1982); Trinidad & Tobago (Schotman, 1989); Turkey (Taylor <i>et al.</i>, 1982); Turkmenistan (Arutyunov, 1985); Ukraine (Volodchenko, 1975); Uruguay (Taylor <i>et al.</i>, 1982); USA (Walters & Barker, 1994); Uzbekistan (Abdullaeva, 1986); Venezuela (Crozzoli <i>et al.</i>, 1991); Yugoslavia (Former) (Grujicic, 1975)	Yes	AQIS, 2000; Taylor <i>et al.</i> , 1982	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Meloidogyne hapla</i> Chitwood, 1949 [Tylenchida: Meloidogynidae]	root knot nematode	Argentina (Chaves & Torres, 1993); Belarus (Gladkaya, 1983); Belgium (Coolen & Hendrickx, 1972); Brazil (Lordello & Monteiro, 1974); Bulgaria (Stoyanov, 1980); Canada (Potter <i>et al.</i> , 1972); Chile (Philippi <i>et al.</i> , 1996); China (Hu <i>et al.</i> , 1997c) (Taiwan (Ruelo, 1981)); Costa Rica (Lopez, 1991); Côte d'Ivoire (Kouame <i>et al.</i> , 1997); Estonia (Krall, 1970); Finland (Tiilikkala, 1991); France (Berge <i>et al.</i> , 1972); Germany (Sturhan, 1976); Greece (Pyrowolakis, 1975); Hungary (Budai, 1979); India (Goyal <i>et al.</i> , 1976); Iran (Maafi & Mahdavian, 1997); Israel (Minz, 1956b); Italy (Ambrogioni, 1969); Japan (Mitsui <i>et al.</i> , 1976); Kenya (Parlevliet, 1971; Whitehead, 1969); Korea, Republic of (Choi, 1981); Latvia (Erenfelde, 1984); Libya (Dabaj & Jenser, 1987); Lithuania (Efremenko & Klimakova, 1972); Malawi (Saka, 1990); Malaysia (Muhammad, 1992); Netherlands (Brinkman, 1975); New Zealand (Dale, 1973); Norfolk Island (Bridge, 1988a); Norway (Stoeen, 1974); Pakistan (Gul & Saeed, 1990); Papua New Guinea (Bridge, 1988a); Peru (Vargas & Pajuelo, 1973); Poland (Berbec, 1972); Portugal (Santos <i>et al.</i> , 1987); Romania (Romascu <i>et al.</i> , 1974); Russian Federation (Pokharel & Kruchina, 1991); South Africa (Kleynhans, 1991; van der Linde, 1956); Spain (Pinochet <i>et al.</i> , 1989); Switzerland (Vallotton, 1981); Tanzania (Swai <i>et al.</i> , 1996; Whitehead, 1969); Thailand (Ratanaprapa & Chunram, 1988); Turkmenistan (Arutyunov, 1992); Uganda (Whitehead, 1969); Ukraine (Zinovev & Volodchenko, 1984); United Kingdom (Southey, 1974); USA (Chitwood, 1949); Uzbekistan (Narbaev, 1976); Yugoslavia (Former) (Grujicic & Paunovic, 1971); Zimbabwe (Martin, 1961; Shepherd & Coombs, 1981)	Yes	Colbran, 1958	No
<i>Meloidogyne incognita</i> (Kofold & White, 1919) Chitwood, 1949 Syn. = <i>Oxyuris incognita</i> Kofold & White, 1919; <i>Meloidogyne incognita</i> var. <i>acrita</i> Chitwood, 1949 [Tylenchida: Meloidogynidae]	root-knot nematode	Philippines (BPI, 1999; Madamba, 1981; Timm, 1965); Solomon Islands (Bridge, 1988a); Sri Lanka (Lamberti <i>et al.</i> , 1993; Sivapalan, 1978); Thailand (Chunram, 1972; Giatgong, 1980; Shepherd & Barker, 1990); see CAB International, 2000	Yes	AQIS, 2000; Khair, 1987; Stirling, 1976	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Meloidogyne javanica</i> (Treub, 1885) Chitwood, 1949 Syn. = <i>Heterodera javanica</i> Treub, 1885; <i>Tylenchus</i> (<i>Heterodera</i>) <i>javanica</i> (Treub 1885) Cobb, 1890; <i>Tylenchus javanica</i> (Treub, 1885) Cobb, 1890; <i>Anguillula javanica</i> (Treub, 1885) Laverigne, 1901; <i>Meloidogyne javanica bauruensis</i> Lordello, 1956 [Tylenchida: Meloidogynidae]	Javanese root knot nematode	Philippines (Caswell <i>et al.</i> , 1990; Madamba, 1981; Timm, 1965); Solomon Islands (IIP, 1989); Sri Lanka (Lamberti <i>et al.</i> , 1993; Sivapalan, 1978); Thailand (Chunram, 1972; Kanjanasoon, 1964; Madamba, 1981); see CAB International, 2000	Yes	AQIS, 2000; Caswell <i>et al.</i> , 1990; Khair, 1987; Stirling, 1976, 1993	No
<i>Meloidogyne</i> sp. [Tylenchida: Meloidogynidae]	nematode		?		Yes
<i>Mermis savaiensis</i> Orton-Williams [Nematoda: Mermithidae]	Mermithic nematode	Western Samoa (Orton-Williams, 1984)	No		Yes
<i>Mesotylus taomasinae</i>	nematode		?		Yes
<i>Morasinema triglyphus</i> Syn. = <i>Trilineelus triglyphus</i>	nematode		?		Yes
<i>Nothocriconemella mutabilis</i> (Taylor) Ebsary	nematode		?		Yes
<i>Paratylenchus elachistus</i> Steine, 1949 Syn. = <i>Paratylenchus minutus</i> Lindford [Tylenchida: Paratylenchidae]	lesion nematode	Barbados (Cadet <i>et al.</i> , 1994); China (Yin <i>et al.</i> , 1994); Cuba (Decker <i>et al.</i> , 1970); Indonesia (Rashid <i>et al.</i> , 1988); Japan (Toida, 1984; Toida <i>et al.</i> , 1978); Martinique (Cadet <i>et al.</i> , 1994); South Africa (Van den Berg, 1977); Trinidad & Tobago (Bala & Hosein, 1996); Union (Cadet <i>et al.</i> , 1994); USA (MacGowan, 1987; Robbins <i>et al.</i> , 1989b)	Yes	McLeod <i>et al.</i> , 1994	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Paratylenchus</i> sp. [Tylenchida: Paratylenchidae]	nematode	Brazil (Cavalcante <i>et al.</i> , 1984)	? (genus is present in Australia)	McLeod <i>et al.</i> , 1994	Yes
<i>Pratylenchus brachyurus</i> (Godfrey, 1929) Filipjev & Schuurmans-Stekhoven, 1941 Syn. = <i>Tylenchus brachyurus</i> Godfrey, 1929; <i>Anguillulina brachyura</i> (Godfrey, 1929) Goodey, 1932; <i>Pratylenchus pratensis</i> Thorne, 1940; <i>Pratylenchus leiocephalus</i> Steiner, 1949; <i>Pratylenchus steineri</i> Lordello <i>et al.</i> , 1954 [Tylenchida: Pratylenchidae]	root-lesion nematode	Bolivia (Corbett & Clark, 1983); Brazil (D'Antonio <i>et al.</i> , 1980; Lordello, 1972; Zem, 1979; Zem <i>et al.</i> , 1978); Bulgaria (Baicheva, 1982); Cameroon (Sakwe & Geraert, 1994); Canada (Ontario) (Mountain, 1954); Costa Rica (Lopez & Salazar, 1990); Côte d'Ivoire (Guérout, 1965, 1975; Kehe <i>et al.</i> , 1997; Meige, 1957); Cuba (Gandoy & Ortega, 1980); Egypt (Oteifa, 1962); Fiji (Bridge, 1988a); French Guiana (Cadet & Van den Berg, 1995); Georgia (Republic) (Motsinger <i>et al.</i> , 1976); Guatemala (Jenkins & Bird, 1962); Guinea (Coyne <i>et al.</i> , 1996); Guyana (Singh, 1972a); India (Basu, 1968; Khan & Reddy, 1991; Prasad, 1986; Reddy <i>et al.</i> , 1991; Sethi & Swarup, 1971); Israel (Winslow, 1960); Japan (Gotoh, 1974); Madagascar (Baudin & Huu-Hai, 1973); Malawi (Corbett, 1967); Malaysia (Sarawak) (Anon., 1972b); Mexico (Roman, 1977); Nigeria (Egunjobi, 1974; Khan & Misari, 1992); Pakistan (Anwar <i>et al.</i> , 1993; Bridge <i>et al.</i> , 1990); Peru (Lordello, 1972; Whitehead, 1968); Philippines (Bridge <i>et al.</i> , 1990); Puerto Rico (Ayala <i>et al.</i> , 1969); Russian Federation (Chernyak, 1968); Singapore (Chin, 1969); South Africa (Keetch, 1982; Willers & Smart, 1990); Sri Lanka (Gnanapragasam, 1991); Thailand (Giatgong, 1980); Togo (de Guiran, 1965); Tonga (Bridge, 1988a); Turkey (Temiz, 1968); Uganda (Bafokuzara, 1982); USA (Alexander, 1963; Birchfield <i>et al.</i> , 1978; Caswell <i>et al.</i> , 1990; Godfrey, 1929; Jenkins <i>et al.</i> , 1957; Minton <i>et al.</i> , 1963; Rohrbach & Apt, 1986; Rohrbach & Schmitt, 1994; Sher & Allen, 1953; Siddiqui <i>et al.</i> , 1973; Thames, 1982); Venezuela (Loof, 1978); Vietnam (Ryss & Fam'-Tkhan'-Bin', 1989; Sharma <i>et al.</i> , 1994); Zimbabwe (Anon., 1973)	Yes	Broadley, 1981; Colbran, 1968; Stirling, 1993	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pratylenchus coffeae</i> (Zimmermann, 1898) Filipjev & Schuurmans Stekhoven, 1941 Syn. = <i>Pratylenchus musicola</i> (Cobb, 1919); <i>Tylenchus coffeae</i> Zimmermann, 1898; <i>Tylenchus mahogani</i> Cobb, 1920; <i>Anguillulina mahogani</i> (Cobb, 1920) Goodey, 1932; <i>Pratylenchus mahogani</i> (Cobb, 1920) Filipjev, 1936; <i>Tylenchus musicola</i> Cobb, 1919 [Tylenchida: Pratylenchidae]	banana root nematode	Barbados (Braithwaite, 1977; Siddiqi, 1972b); Belau (Bridge, 1988a); Brazil (Cafe-Filho & Huang, 1988); Brunei Darussalam (Siddiqi, 1972b); Bulgaria (Katalan-Gateva & Budurova, 1979); Cameroon (restricted distribution) (Bridge <i>et al.</i> , 1995); China (Anon., 1990; Huang & Chiang, 1976); Colombia (Wehunt & Edwards, 1968); Congo Democratic Republic (Geraert, 1962); Cook Islands (Grandison, 1990); Costa Rica (Lopez & Salazar, 1990); Côte d'Ivoire (restricted distribution) (Fargette & Quénehervé, 1988); Cuba (Stoyanov, 1967b); Dominica (Siddiqi, 1972b); Dominican Republic (EPPO, 1999); Ecuador (Bridge, 1975); El Salvador (Siddiqi, 1972b); Fiji (Bridge, 1988a); French Guiana (EPPO, 1999); Georgia (Republic) (Eliava & Bagaturiya, 1971); Grenada (EPPO, 1999); Guadeloupe (Kermarrec <i>et al.</i> , 1988); Guatemala (Siddiqi, 1972b); Honduras (Pinochet <i>et al.</i> , 1978); India (Anandi & Dhanachand, 1992; Mahajan & Kaur, 1991; Rama & Dasgupta, 1987; Sethi & Swarup, 1971); Indonesia (Java) (Siddiqi, 1972b); Jamaica (Thompson <i>et al.</i> , 1973); Japan (restricted distribution) (Fukudome, 1978; Gotoh, 1972, 1974; Inagaki, 1984); Kiribati (Bridge, 1988a); Madagascar (Whitehead, 1968); Malawi (Keetch & Buckley, 1984; Saka & Siddiqi, 1979); Martinique (Cadet <i>et al.</i> , 1993); Mexico (restricted distribution) (Knobloch & Laughlin, 1973); Mozambique (Oever & Mangane, 1992); Malaysia (Muhammad, 1992); Nicaragua (Edwards & Wehunt, 1973); Nigeria (Khan & Misari, 1992); Niue (Bridge, 1988a); Pakistan (Khan <i>et al.</i> , 1989; Maqbool, 1992); Panama (Edwards & Wehunt, 1973; Pinochet & Duarte, 1986); Papua New Guinea (Bridge, 1988a); Philippines (Siddiqi, 1972b); Puerto Rico (Siddiqi, 1972b); Samoa (Bridge, 1988a); Seychelles (Siddiqi, 1972b); Solomon Islands (Bridge, 1988a); South Africa (Siddiqi, 1972b); Spain (Canary Islands (Siddiqi, 1972b)); Suriname (EPPO, 1999); Tanzania (Bridge, 1984); Thailand (Chunram, 1972; Siddiqi, 1972b); Tonga (Bridge, 1988a); Trinidad & Tobago (Braithwaite, 1980); USA (Riggs <i>et al.</i> , 1956; Siddiqi, 1972b); Vanuatu (Bridge, 1988a); Venezuela (Siddiqi, 1972b); Vietnam (Ryss & Fam-Tkhan'-Bin', 1989); Zambia (Keetch & Buckley, 1984); Zimbabwe (Keetch & Buckley, 1984)	Yes	Colbran, 1964	No
<i>Pratylenchus goodeyi</i> Sher & Allen, 1953 Syn. = <i>Tylenchus musicola</i> Apud Goodey, 1928; <i>Anguillulina musicola</i> Apud Goodey, 1932 [Tylenchida: Pratylenchidae]	banana lesion nematode	Burundi (Bridge, 1988b); Cameroon (Bridge <i>et al.</i> , 1995); Egypt (Oteifa, 1962); Ethiopia (Peregrine & Bridge, 1992); Greece (Vovlas <i>et al.</i> , 1994a); Kenya (Gichure & Ondieki, 1977); Rwanda (Sarah, 1989); Spain (Canary Islands (de Guiran & Vilardebó, 1962)); Tanzania (Bridge, 1988b); Uganda (CAB International, 2000)	Yes	Bridge <i>et al.</i> , 1997	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pratylenchus penetrans</i> (Cobb, 1917) Filipjev & Schuurmans Stekhoven, 1941 Syn. = <i>Tylenchus penetrans</i> Cobb, 1917; <i>Pratylenchus gulosus</i> (Kühn, 1890) Filipjev & Schuurmans Stekhoven, 1941; <i>Tylenchus gulosus</i> Kühn, 1890 (nomen oblitum)	root-lesion nematode	Albania (Jovani, 1994); Algeria (Lamberti, 1973); Argentina (Hijano, 1991); Azerbaijan (Kasimova & Atakishieva, 1976); Belgium (Wuyts <i>et al.</i> , 1971); Brazil (Rocha-Monteiro <i>et al.</i> , 1980) (São Paulo (Ferraz & Monteiro, 1983; Silveira <i>et al.</i> , 1988)); Bulgaria (Nikolova <i>et al.</i> , 1976); Canada (Olthof <i>et al.</i> , 1971; Townshend, 1966); China (Wang, 1993; Yang & Qi, 1994; Yang <i>et al.</i> , 1992); Costa Rica (Lopez & Salazar, 1990); Cyprus (Anon., 1991; Philis, 1995); Czechoslovakia (Former) (Ondrej, 1974); Denmark (Jakobsen, 1975); Egypt (Abdel-Hadi & Ghorab, 1987; Haroon & Abadir, 1989); Estonia (Krall, 1972); Finland (Kurppa, 1985); France (Caubel <i>et al.</i> , 1975); Germany (Muller, 1972); Greece (Koliopanos & Vovlas, 1977); Hungary (restricted distribution) (Farkas <i>et al.</i> , 1985); India (Kundu & Mishra, 1993; Narayanaswamy <i>et al.</i> , 1975; Ramakrishnan & Vadivelu, 1995; Sethi & Swarup, 1971; Zaki <i>et al.</i> , 1991); Italy (Mancini & Moretti, 1974); Japan (Gotoh, 1974); Kenya (Anyango, 1988); Kirgizia (Gritsenko, 1974); Korea, Republic of (Jeong & Kim, 1989); Libya (Edongali, 1996); Mexico (Vazquez, 1976); Moldova (Nesterov & Lizogubova, 1972); Morocco (Meskine & Abbad, 1993); Netherlands (Gommers, 1972); New Zealand (Boesewinkel, 1977; Wood & Foot, 1982); Nigeria (Fawole & Mai, 1988); Norway (Stoen, 1988); Pakistan (Khan <i>et al.</i> , 1992; Qasim & Ahmed, 1989; Qasim & Hashmi, 1988); Philippines (Valdez & Cowel, 1979); Poland (Szczygiel & Danek, 1975); Portugal (Abrantes <i>et al.</i> , 1987); Romania (Rojancovschi, 1984); Russian Federation (Khurramov, 1972; Gritsenko, 1974; Ovechnikov, 1972; Romaniko, 1969); Saudi Arabia (Al-Ahazimi, 1988); Slovakia (Liskova <i>et al.</i> , 1988); South Africa (Willers, 1975); Spain (Wienberg <i>et al.</i> , 1972); Sweden (Kauri-Paasuke, 1973); Switzerland (Harr & Klinger, 1976); Trinidad & Tobago (Singh, 1973; Singh & Farrell, 1973); Turkey (Elekcioglu, 1995); United Kingdom (Trudgill & Brown, 1978; Lane, 1984); USA (Arneson & Mai, 1976; Estores & Chen, 1972; Griffin, 1993; MacDonald, 1972; Mai <i>et al.</i> , 1977; Schenk & Kinloch, 1974; Schultz & Morehart, 1981; Seliskar & Huettel, 1993); Venezuela (Crozzoli, 1989; Yopez <i>et al.</i> , 1972); Vietnam (restricted distribution) (Ryss & Fam-Tkhan'-Bin', 1989); Yugoslavia (Grujicic, 1969); Zimbabwe (Way, 1973)	Yes	Colbran, 1976; Dullahide <i>et al.</i> , 1994; Suatmadji, 1988; Suatmadji & Marks, 1983	No
<i>Pratylenchus pratensis</i> (de Man, 1880) Filipjev, 1936	nematode		?		Yes
<i>Pratylenchus scribneri</i> Steiner, 1943 [Tylenchida: Pratylenchidae]	nematode	Pakistan, South America, USA (CAB International, 2000)	?		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pratylenchus thornei</i> Sher & Allen, 1953 [Tylenchida: Pratylenchidae]	nematode	Argentina (Doucet, 1988); Belgium (Coolen & Hendrickx, 1972); Bulgaria (Ryss <i>et al.</i> , 1991); Croatia (Jelic, 1992); Cyprus (Philis, 1976); Denmark (Andersen, 1979); Egypt (Oteifa & El-Sharkawi, 1965); Germany (Loof, 1960); Greece (Koliopanos & Kalyviotis-Gazelas, 1979); India (Bajaj & Bhatti, 1982; Joshi <i>et al.</i> , 1970; Sethi & Swarup, 1971; Subramaniyan & Sivakumar, 1991; Zaki <i>et al.</i> , 1991); Iran (Kheiri, 1972); Israel (Orion <i>et al.</i> , 1979); Italy (D'Errico, 1970); Japan (Gotoh & Ohshima, 1963); Libya (Edongali & El-Malih, 1988); Mexico (Perez <i>et al.</i> , 1970; Van Gundy <i>et al.</i> , 1974); Morocco (Meskine & Abbad, 1993); Netherlands (Oostenbrink, 1954); Portugal (Abrantes <i>et al.</i> , 1987); Russian Federation (Tebenkova & Ivanova, 1989); Saudi Arabia (Eissa, 1982); Syria (Greco <i>et al.</i> , 1984); Turkey (Elekcioğlu, 1995; Vito <i>et al.</i> , 1994); USA (Mojtahedi <i>et al.</i> , 1988; Sher & Allen, 1953); Yugoslavia (Former) (Grujicic, 1969)	Yes	Colbran & McCulloch, 1965	No
<i>Pratylenchus zeae</i> Graham, 1951 Syn. = <i>Pratylenchus indicus</i> Das, 1960	root lesion nematode	Argentina (Costilla, 1973); Belize (Bridge <i>et al.</i> , 1996); Brazil (Monteiro, 1968); Burkina Faso (Cadet & Merny, 1978; Spaull & Cadet, 1990); Cameroon (Samsoen & Geraert, 1975); Colombia (Trevathan <i>et al.</i> , 1985); Costa Rica (Sancho & Salazar, 1985); Côte d'Ivoire (Merny, 1970); Cuba (Gateva & Penton, 1971); Egypt (Oteifa, 1962); Fiji (Bridge, 1988a); India (Jagdale <i>et al.</i> , 1986; Sharma <i>et al.</i> , 1992); Indonesia (Sumatra (Prot <i>et al.</i> , 1992)); Jamaica (Schotman, 1989); Japan (Gotoh, 1968); Kenya (Wolff-Schoemaker, 1968); Mozambique (Oever & Mangane, 1992); Nigeria (Babatola, 1984); Panama (Pinochet, 1987); Papua New Guinea (Bridge, 1988a); Philippines (Bridge <i>et al.</i> , 1990); Puerto Rico (Valle-Lamboy & Ayala, 1980); Samoa (Bridge, 1988a); Senegal (Fortuner, 1975); South Africa (Spaull & Cadet, 1990; Waele & Van den Berg, 1988); Tonga (Bridge, 1988a); USA (Atkins <i>et al.</i> , 1957; Cuarezma-Terán, 1985; Rohrbach & Schmitt, 1994; Schenck & Schmitt, 1992); Venezuela (Loof, 1964); Vietnam (Ryss & Fam-Tkhan'-Bin', 1989); Zambia (Lawn, 1988); Zimbabwe (Martin, 1967)	Yes	NSW Department of Agriculture, 1978	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Radopholus similis</i> (Cobb, 1893) Thorne, 1949 Syn. = <i>Tylenchus similis</i> Cobb, 1893; <i>Anguillulina similis</i> (Cobb, 1893) Goodey, 1932; <i>Rotylenchus similis</i> (Cobb, 1893) Filipjev, 1936; <i>Tylenchus granulosus</i> Cobb, 1893; <i>Anguillulina granulosa</i> (Cobb, 1893) Goodey, 1932; <i>Bitylenchus granulosus</i> (Cobb, 1893) Filipjev, 1934; <i>Tylenchus granulosus</i> (Cobb, 1893) Filipjev, 1936; <i>Tylenchus acutocaudatus</i> Zimmermann, 1898; <i>Anguillulina acutocaudatus</i> (Zimmermann, 1898) Goodey, 1932; <i>Tylenchus biformis</i> Cobb, 1909; <i>Anguillulina biformis</i> (Cobb, 1909) Goodey, 1932 [Tylenchida: Pratylenchidae]	burrowing nematode	Argentina, Barbados, Belgium, Canada (British Columbia), Central African Republic, Central America, China (eradicated), Costa Rica, Denmark (eradicated), Dominican Republic, Egypt, France (restricted distribution), French Guiana, French Polynesia, French West Indies, Germany (restricted distribution), Guyana, Israel, Italy (restricted distribution), Lebanon, Malaysia (Peninsular Malaysia), Mauritius, Netherlands (restricted distribution), Panama, Poland, Portugal (Madeira) (eradicated), Saint Kitts & Nevis, Seychelles, Slovenia (restricted distribution), Sweden (eradicated), United Kingdom (eradicated), United States Virgin Islands (restricted distribution), Yemen (EPPO, 1999); Belau (restricted distribution) (Bridge, 1988b); Belize (Pinochet & Ventura, 1977); Bolivia (Bridge <i>et al.</i>, 1982); Brazil (Zem & Lordello, 1983); Brunei Darussalam (Bridge, 1993); Burundi (Bridge, 1988a); Cameroon (Bridge <i>et al.</i>, 1995); Colombia (Loos, 1961); Congo (Luc <i>et al.</i>, 1964); Congo Democratic Republic (Elmiligy & Geraert, 1971); Cook Islands (Grandison, 1990); Côte d'Ivoire (Adiko, 1988); Cuba (Stoyanov, 1967b); Dominica (Edmunds, 1969); Ecuador (restricted distribution) (Bridge, 1976); El Salvador (Wehunt & Edwards, 1968); Ethiopia (O'Bannon, 1975); Fiji (Cobb, 1915); Gabon (O'Bannon, 1977); Gambia (Bridge, 1993); Ghana (Addoh, 1971); Grenada (Edmunds, 1969); Guadeloupe (Scotto la Massèse, 1969); Guam (Bridge, 1988b); Guatemala (Loos, 1961); Guinea (Luc, 1968); Honduras (Loos, 1961); India (Koshy & Jay, 1991); Indonesia (Ministry of Agriculture, 1999); Jamaica (Cobb, 1915); Kenya (Ngundo & Taylor, 1973); Madagascar (Luc, 1968); Malawi (Saka & Siddiqi, 1979); Martinique (Scotto la Massèse, 1969); Mexico (Taboada & Caballero, 1968); Micronesia, Federated States of (Bridge, 1988b); Morocco (Sarah, 1989); Mozambique (Evaristo, 1969); Nicaragua (Wehunt & Edwards, 1968); Nigeria (Caveness, 1965); Niue (Orton-Williams, 1980); Norfolk Island (Khair, 1982); Oman (Waller & Bridge, 1978); Pakistan (Shahina & Maqbool, 1992); Papua New Guinea (Bridge & Page, 1984); Peru (Sasser <i>et al.</i>, 1962); Philippines (Timm, 1965); Puerto Rico (Román <i>et al.</i>, 1974); Réunion (Vilardebó & Guérout, 1976); Saint Lucia (Edmunds, 1969); Saint Vincent & the Grenadines (Edmunds, 1969); Samoa (Orton-Williams, 1980); Senegal (Luc, 1968); Solomon Islands (Bridge, 1988b); Somalia (Beccari & Scavazzon, 1966); South Africa (Jones & Milne, 1982); Sri Lanka (Gnanapragasam <i>et al.</i>, 1991); Sudan (Decker <i>et al.</i>, 1980); Suriname (Maas, 1969); Tanzania (Ngundo & Taylor, 1973); Zanzibar (Sebasigari & Stover, 1987); Thailand (Timm, 1965); Tonga (Kirby <i>et al.</i>, 1980); Trinidad & Tobago (restricted distribution) (Scotto la Massèse, 1969); Uganda (Ngundo & Taylor, 1973); USA (Sher, 1954; Suit & Ducharme, 1953); Venezuela (Haddad <i>et al.</i>, 1973); Zambia (Raemaekers & Patel, 1973); Zimbabwe (Martin, 1969)	Yes	Blake, 1963, 1972	No
<i>Rotylenchulus brevis</i>	nematode		?		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Rotylenchulus reniformis</i> Linford & Oliveira, 1940 [Tylenchida: Rotylenchulidae]	reniform nematode	Angola (restricted distribution) (Dick & Spaul, 1982); Antigua & Barbuda (EPPO, 1999); Bangladesh (EPPO, 1999); Belize (Bridge <i>et al.</i> , 1996); Bermuda (Perry <i>et al.</i> , 1963); Brazil (Cavalcante <i>et al.</i> , 1984; Dasgupta <i>et al.</i> , 1968; Goes <i>et al.</i> , 1982b; Santos & Silva, 1984; Sharma, 1976; Sharma & Loof, 1972); Brunei Darussalam (Peregrine & Yuntun, 1980); Burundi (restricted distribution) (Bridge, 1988b); Cameroon (Bridge <i>et al.</i> , 1995); China (Chengzhu <i>et al.</i> , 1986; Ching, 1969; Yang <i>et al.</i> , 1992; Yin, 1995; Ying, 1985); Colombia (Barriga, 1971); Côte d'Ivoire (Fargette & Quénéhervé, 1988); Cuba (Gandoy & Ortega, 1980; Stoyanov, 1967b); Dominica (Hunt, 1977); Dominican Republic (EPPO, 1999); Egypt (Tarjan, 1964); Fiji (Kirby, 1978); Gambia (Luc & Merny, 1972); Ghana (Peacock, 1956); Greece (restricted distribution) (Hirschmann <i>et al.</i> , 1966); Grenada (Hunt, 1977); Guadeloupe (Scotto la Massèse, 1969); Guam (Orton-Williams, 1980); Guyana (EPPO, 1999); Honduras (Pinochet & Ventura, 1980); India (Dasgupta & Seshadri, 1971; Dasgupta <i>et al.</i> , 1968; Jain, 1992; Nath <i>et al.</i> , 1997, 1998; Phukan & Saikia, 1983; Salam & Khan, 1988; Swarup <i>et al.</i> , 1967); Indonesia (Dasgupta <i>et al.</i> , 1968) (Java (Dasgupta <i>et al.</i> , 1968), Nusa Tenggara (restricted distribution) (Bridge, 1989), Sulawesi (Bridge, 1989), Sumatra (Suharti, 1976)); Iraq (restricted distribution) (Dasgupta <i>et al.</i> , 1968); Israel (Cohn & Schilt, 1975); Jamaica (Dasgupta <i>et al.</i> , 1968); Japan (restricted distribution) (Dasgupta <i>et al.</i> , 1968); Kenya (Njuguna & Bridge, 1998); Kiribati (Orton-Williams, 1980); Lebanon (Taylor <i>et al.</i> , 1970); Liberia (Dasgupta <i>et al.</i> , 1968); Malawi (Martin, 1955); Malaysia (Winoto & Sauer, 1982); Malta (restricted distribution) (Lamberti & Dandria, 1979); Martinique (Cadet <i>et al.</i> , 1994); Mexico (Caswell <i>et al.</i> , 1990; Dasgupta <i>et al.</i> , 1968); Montserrat (Braithwaite, 1973); Mozambique (Oever & Mangane, 1992); Nigeria (Caveness, 1967); Niue (Orton-Williams, 1980); Oman (Waller & Bridge, 1978); Pakistan (Dasgupta <i>et al.</i> , 1968); Panama (Dasgupta <i>et al.</i> , 1968); Papua New Guinea (Bridge, 1988a); Peru (EPPO, 1999); Philippines (Dasgupta <i>et al.</i> , 1968; Davide, 1988); Puerto Rico (Ayala & Ramirez, 1964; Caswell <i>et al.</i> , 1990); Saint Lucia (Edmunds, 1971); Saint Vincent & the Grenadines (Hunt, 1977); Samoa (Fliege & Sikora, 1981); Solomon Islands (Orton-Williams, 1980); Somalia (restricted distribution) (Dasgupta <i>et al.</i> , 1968); South Africa (Keetch, 1982); Spain (restricted distribution) (Artero <i>et al.</i> , 1977); Sri Lanka (Dasgupta <i>et al.</i> , 1968); Sudan (Yassin, 1988); Suriname (Maas, 1970); Tanzania (Hillocks & Bridge, 1992); Thailand (Caswell <i>et al.</i> , 1990; Chunram, 1972); Trinidad & Tobago (Singh & Farrell, 1972); Togo (restricted distribution) (Luc & de Guiran, 1960); Tonga (Orton-Williams, 1980); USA (Birchfield & Brister, 1962; Caswell <i>et al.</i> , 1990; Heald & Robinson, 1990; Linford & Oliveira, 1940; Rohrbach & Schmitt, 1994; Steiner, 1949; van Weerd <i>et al.</i> , 1959); Venezuela (Dao, 1972); Vietnam (Chau <i>et al.</i> , 1997); Zimbabwe (Martin, 1955); universal (Nakasone & Paull, 1998)	Yes	Stirling, 1993	No
<i>Rotylenchulus unisexus</i> Sher 1965	lesion nematode	South Africa (Nakasone & Paull, 1998)	?		Yes
<i>Rotylenchulus unum</i>	nematode		?		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Scutellonema amabilis</i> Eroshenko & Thanh, 1981 [Tylenchida: Hoplolaimidae]	nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
<i>Scutellonema bradys</i> (Steiner & Le Hew, 1933) Andrássy, 1958 Syn. = <i>Hoplolaimus bradys</i> Steiner & Le Hew, 1933; <i>Anguillulina bradys</i> (Steiner & Le Hew, 1933) T. Goodey, 1975; <i>Rotylenchus bradys</i> (Steiner & Le Hew, 1933) Filipjev, 1936; <i>Rotylenchus</i> <i>blaberus</i> Steiner, 1937; <i>Scutellonema blaberum</i> (Steiner, 1937) Andrásy, 1958; <i>Scutellonema</i> <i>dioscorea</i> Lordello, 1959 [Tylenchida: Hoplolaimidae]	yam nematode	Barbados (EPPO, 1999); Brazil (Lordello, 1959); Cameroon (Bridge <i>et al.</i> , 1995); Côte d'Ivoire (Baudin, 1956); Cuba (Decker <i>et al.</i> , 1967); Dominica (Belliard & Kermarrec, 1978); Dominican Republic (EPPO, 1999); Gambia (Merny & Fortuner, 1973); Ghana (Addoh, 1971); Guadeloupe (Kermarrec <i>et al.</i> , 1987); Guatemala (Sher, 1964); Guinea (Luc & de Guiran, 1960); Haiti (Jatala & Bridge, 1990); India (Kerala) (Nadakal & Thomas, 1967); Jamaica (Steiner & LeHew, 1933); Martinique (Kermarrec <i>et al.</i> , 1987); Nigeria (Bridge, 1972; Goodey, 1935; Unny & Jerath, 1965); Puerto Rico (Ayala & Acosta, 1971; Steiner & Buhrer, 1934); Senegal (EPPO, 1999); Togo (Luc & de Guiran, 1960); USA (Florida) (Sher, 1964)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Scutellonema brachyurus</i> Steiner (1938) Andr�ssy, 1958 Syn. = <i>Rotylenchus brachyurus</i> Steiner, 1938; <i>Scutellonema brachyurum</i> (Steiner, 1938) Andr�ssy, 1958; <i>Rotylenchus coheni</i> Goodey, 1952; <i>Scutellonema coheni</i> (Goodey, 1952) Andr�ssy, 1958; <i>Scutellonema boocki</i> Lordello, 1957; <i>Scutellonema sheri</i> Edward & Rai, 1970; <i>Scutellonema ramai</i> Verma, 1972; <i>Scutellonema orientale</i> Rashid & Khan, 1974; <i>Scutellonema bangalorensis</i> ; <i>Scutellonema conicaudatum</i> [Tylenchida: Hoplolaimidae]	spiral nematode	Brazil (Kranz <i>et al.</i> , 1977; Lordello, 1957; Sher, 1964); China (Duan <i>et al.</i> , 1995); Congo Democratic Republic (Ali <i>et al.</i> , 1973); Egypt (Tarjan, 1964); India (Baqri, 1991; Patel <i>et al.</i> , 1988; Rama & Dasgupta, 1987; Zarina & Maqbool, 1995); Jamaica (Hutton, 1975); Germany (Braasch, 1987); Nigeria (Sher, 1964); Peru (Krusberg & Hirschmann, 1958); Poland (Wojtowicz & Szczygiel, 1990); South Africa (Keetch & Dalldorf, 1980; Van den Berg & Heyns, 1973); Swaziland (Siddiqi, 1972c); Thailand (Ratanaprapa & Boonduang, 1975); United Kingdom (Goodey, 1951); USA (Esser <i>et al.</i> , 1986; Kraus & Lewis, 1979; Mead, 1987; Nesmith <i>et al.</i> , 1981; Ruehle, 1971; Schmitt, 1988; Siddiqui <i>et al.</i> , 1973); Zambia (Lawn <i>et al.</i> , 1988a, b); Zimbabwe (Shepherd, 1977)	Yes	Colbran, 1964; Sher, 1964	No
<i>Scutellonema vietnamiensis</i> Eroshenko & Thanh, 1981 [Tylenchida: Hoplolaimidae]	nematode	Vietnam (Eroshenko & Thanh, 1981)	No		Yes
<i>Trichodorus porosus</i> (Allen, 1957) Syn. = <i>Partrichodorus porosus</i> (Allen, 1957) Siddiqui, 1974 [Triplonchida: Trichodoridae]	nematode		?		Yes
<i>Tylenchorhynchus acutus</i> Allen, 1955 [Tylenchida: Belonolaimidae]	nematode		?		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Tylenchorhynchus annulatus</i> (Cassidy, 1930) Golden, 1971 [Tylenchida: Belonolamidae]	stunt nematode	Bangladesh (Timm & Ameen, 1960); China (Taiwan) (Lin, 1970); Costa Rica (Lopez <i>et al.</i> , 1987); Cuba (Fernandez & Ortega, 1983a); Guyana (EPPO, 1994); India (Raut, 1981); Iran (Kheiri, 1972); Korea, Republic of (Choi, 1993); Malaysia (Mizubuko & Toida, 1991); Philippines (Plowright <i>et al.</i> , 1990); Senegal (Hooper & Merny, 1966); Sierra Leone (Hooper & Merny, 1966); Suriname (EPPO, 1994); Vietnam (Cuc & Prot, 1992); USA (Birchfield & Martin, 1956; Fielding, 1956)	Yes	Stirling & Vawdry, 1985	No
<i>Tylenchorhynchus brevidens</i> Allen [Tylenchida: Belonolamidae]	nematode		?		Yes
<i>Tylenchorhynchus claytoni</i> Steiner, 1937 [Tylenchida: Belonolamidae]	tobacco stunt nematode	Canada, Honduras, Japan, Netherlands, USA (EPPO, 1999); Korea, Republic of (CAB International, 2000)	No		Yes
<i>Tylenchorhynchus nudus</i> Allen [Tylenchida: Belonolamidae]	nematode		?		Yes
<i>Tylenchorhynchus parvus</i> [Tylenchida: Belonolamidae]	nematode		?		Yes
<i>Tylenchorhynchus</i> spp. [Tylenchida: Belonolamidae]	nematode	India (Phukan <i>et al.</i> , 1981)	?	(genus is present in Australia)	Yes
<i>Tylenchus filiformis</i> Butschli, 1873	nematode	Thailand (Giatgong, 1980)	No		Yes
<i>Tylenchus</i> spp.	nematode	India (Phukan <i>et al.</i> , 1981)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Xiphinema americanum</i> Cobb, 1913 Syn. = <i>Tylencholaimus americanus</i> (Cobb, 1913) Micoletzky, 1922; <i>Xiphinema taylori</i> Lamberti <i>et al.</i> , 1991; <i>Xiphinema californicum</i> Lamberti & Bleve-Zaches, 1979	American dagger nematode	Argentina (Bergna, 1968); Canada (Dias, 1977; Hansen <i>et al.</i> , 1974); Chile (Auger, 1989; Guinez, 1980); China (Yin, 1994; Yin <i>et al.</i> , 1994); Ecuador (Bridge, 1976); Guatemala (Thorne & Schieber, 1962); Hungary (Stouffer & Mowery, 1980); India (Ganguly & Khan, 1991; Khan <i>et al.</i> , 1992; Phukan & Sanwal, 1982; Siddiqi, 1959; Thapa & Ganguly, 1990, 1993); Japan (Gotoh, 1965; Iwaki & Komuro, 1974); Kazakhstan (Sofrygina, 1974); Korea, Democratic People's Republic (Lee & Han, 1976); Mexico (EPPO, 1999); Nigeria (Babatola, 1984); Oman (Waller & Bridge, 1978); Pakistan (Khan <i>et al.</i> , 1989; Nasira & Maqbool, 1994; Saeed & Ashrafi, 1973); Panama (Pinochet <i>et al.</i> , 1986); Peru (EPPO, 1999); Philippines (Valdez, 1980); Poland (Wasilewska, 1971); Russian Federation (Boldyrev & Borzykh, 1979; Koev & Nesterov, 1974; Polozov, 1979; Romanenko, 1971); Spain (Weiland-Ardaiz <i>et al.</i> , 1995); Sri Lanka (Loos, 1949); Tajikistan (Ivanova, 1972); Turkey (Bora, 1970); United Kingdom (Dale & Brown, 1973); Uruguay (Alvarez-Argudin, 1970; Mesa & Alvarez-Argudin, 1974); USA (restricted distribution) (Bird & Ramsdell, 1985; Ferris & Bernard, 1971; Fielding & Hollis, 1956; Georgi, 1988a, b; Krupinsky <i>et al.</i> , 1983; MacGowan, 1980; Mead, 1988, 1989, 1990; Miller, 1980; Niblack & Bernard, 1985; Norton & Edwards, 1988; Ponchillia, 1975; Robbins <i>et al.</i> , 1989a; Ruehle & Sasser, 1962; Santo & Ponti, 1981; Tarjan, 1956; Ward, 1960; Wojtowicz <i>et al.</i> , 1982); Uzbekistan (Bora, 1970); Venezuela (Crozzoli <i>et al.</i> , 1991)	Yes	Anderson, 1965; Harris, 1980; McLeod, 1979; Stirling, 1975	No
<i>Xiphinema chambersi</i> Thorne, 1939 [Dorylaimida: Longidoridae]	nematode		?		Yes
<i>Xiphinema ensiculiferum</i> Cobb, 1893 [Dorylaimida: Longidoridae]	nematode		?		Yes
<i>Xiphinema ifacolum</i> Luc, 1961 [Dorylaimida: Longidoridae]	dagger nematode	Brazil (Loof & Sharma, 1979; Rashid <i>et al.</i> , 1986; Sharma & Loof, 1973); Cameroon (Sakwe & Coomans, 1993); Côte d'Ivoire (Adiko, 1988); Guinea (Luc, 1961); Liberia (Lamberti <i>et al.</i> , 1991, 1992a, b); Sierra Leone (Coiro <i>et al.</i> , 1995); Sri Lanka (Lamberti <i>et al.</i> , 1983)	?		Yes
<i>Xiphinema insigne</i> Loos [Dorylaimida: Longidoridae]	nematode	Trinidad & Tobago (Schotman, 1989)	?		Yes
<i>Xiphinema louisi</i> Heyns, 1979 [Dorylaimida: Longidoridae]	nematode	South Africa (Heyns, 1979)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Xiphinema radicolica</i> Goodey, 1936 [Dorylaimida: Longidoridae]	nematode	India (Nath <i>et al.</i> , 1998)	Yes	Irwin & Jones, 1977	No
<i>Xiphinema</i> spp. [Dorylaimida: Longidoridae]	nematode	India (Nath <i>et al.</i> , 1997)	?		Yes
Fungi					
<i>Annelolacinia dinemasporioides</i> Sutton [Mitosporic fungi]		China (Nag-raj, 1993); Indonesia (Frohlich <i>et al.</i> , 1993; Hyde & Philemon, 1994); Irian Jaya (Frohlich <i>et al.</i> , 1993; Hyde & Philemon, 1994); Papua New Guinea (Frohlich <i>et al.</i> , 1993; Hyde & Philemon, 1994)	No		Yes
<i>Antennularia</i> sp. [Dothideales: Venturiaceae]		Malaysia (Singh, 1980)	No		Yes
<i>Aspergillus flavus</i> (Link) Fr. [Mitosporic fungi]	Aspergillus rot	Nigeria (Adisa, 1983; Adisa & Fajola, 1982); USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	AQIS, 2000	No
<i>Aspergillus niger</i> Tiegh [Mitosporic fungi]	black mould	Nigeria (Adisa, 1983)	Yes	AQIS, 2000	No
<i>Athelia rolfsii</i> (Curzi) Tu & Kimbrough Syn. = <i>Corticium rolfsii</i> Curzi; <i>Pellicularia rolfsii</i> E. West Anamorph = <i>Sclerotium rolfsii</i> Sacc.	Sclerotium rot	India (Singh, 1972b); Africa, southern Asia, Australasia, Central America, Central Europe, North America, West Indies, Italy, Spain, Sweden (Mordue, 1974); widespread in moist tropics and warm temperate areas (Mordue, 1974)	Yes	Pegg <i>et al.</i> , 1974	No
<i>Beltrania rhombica</i> Penz. Syn. = <i>B. indica</i> Subr.; <i>B. multispora</i> H.J. Swart [Mitosporic fungi]	leaf spot	China (Taiwan) (Matsushima, 1980); Japan (Heredia-Abarca, 1994); Malaysia (Singh, 1980)	Yes	Heredia-Abarca, 1994	No
<i>Bipolaris australiensis</i> (M.B. Ellis) Tsuda & Ueyama [Mitosporic fungi]		India (Ellis, 1971)	Yes	Ellis, 1971	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Brachysporium ananassae</i> Sawada [Mitosporic fungi]		China (Taiwan) (Anon., 1979b; Sawada, 1959)	No		Yes
<i>Brachysporium</i> sp. [Mitosporic fungi]	leaf spot	Thailand (Giatgong, 1980)	No		Yes
<i>Calothyriella ananassae</i> Viegas [Dothidiales: Microthyriaceae]		Bahamas (Matthews, 1968); Brazil (Mendes <i>et al.</i> , 1998; Hanlin 1992); Brunei (Peregrine & Ahmad, 1982); Cuba (Urtiaga 1986); Ghana (Hughes, 1949a); United Kingdom (Hughes, 1952)	No		Yes
<i>Candida guilliermondii</i> (Castellani) Langeron & Guerra Syn. = <i>Endomyces guilliermondii</i> Castellani [Mitosporic fungi]	fruitlet core rot (FCR); round yeast	USA (Hawaii) (Rohrbach & Schmitt, 1994)	No	AQIS, 2000	Yes
<i>Capnodium</i> sp. [Dothideales: Capnodiaceae]	sooty mould	Malaysia (Singh, 1980)	No		Yes
<i>Ceratocystis fimbriata</i> Ellis & Halsted Syn. = <i>Ceratostomella fimbriata</i> (Ellis & Halsted) Nannf.; <i>Endoconidiophora fimbriata</i> (Ellis & Halsted) R.W. Davidson; <i>Ophiostoma fimbriata</i> (Ellis & Halsted) Nannf. [Microascales: Incertae sedis]		American Samoa, Brazil, Brunei Darussalam, Cambodia, Canada, China (Taiwan), Colombia, Congo Democratic Republic, Costa Rica, Côte d'Ivoire, Cuba, Dominican Republic, Ecuador, El Salvador, Fiji, France, French West Indies, Ghana, Grenada, Guatemala, Guyana, Haiti, India, Indonesia, Italy, Jamaica, Japan, Korea, Democratic People's Republic, Korea, Republic of, Malaysia, Mexico, Myanmar, New Zealand, Nicaragua, Panama, Papua New Guinea, Peru, Philippines, Puerto Rico, Saint Lucia, Saint Vincent & the Grenadines, Samoa, Seychelles, Solomon Islands, South Africa, Suriname, Thailand, Trinidad & Tobago, Uganda, United Kingdom, USA (Hawaii), Venezuela, Vietnam (EPPO, 1999)	Yes	Walker <i>et al.</i> , 1988	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Ceratocystis paradoxa</i> Dade (C. Moreau) (Teleomorph) Anamorph = <i>Thielaviopsis paradoxa</i> (De Seynes) Hohn.; <i>Chalara paradoxa</i> (De Seynes) Sacc.; <i>Ceratostomella paradoxa</i> Dade; <i>Ophiostoma paradoxum</i> (Dade) Nannf. [Microascales: Incertae sedis]	black rot; butt rot; fruit rot; heart rot; stem end rot; water blister; white leaf spot (Mallikarjunaradhya <i>et al.</i> , 1979)	India (Mallikarjunaradhya <i>et al.</i> , 1979; Sridhar, 1975); Indonesia (Ministry of Agriculture, 1999); Malaysia (Singh, 1980; Lim, 1985); Philippines (BPI, 2000); Puerto Rico (Liu & Rodriguez, 1973); Sri Lanka (Wijeratnam <i>et al.</i> , 1993); Thailand (Giatgong, 1980); USA (Hawaii (Rohrbach & Schmitt, 1994)); universal (Nakasone & Paull, 1998)	Yes	Simmonds, 1966; Pegg, 1993, Pegg <i>et al.</i> , 1995	No
<i>Ceratospheeria</i> sp. [Sordariales: Lasiosphaeriaceae]		Venezuela (Urtiaga, 1986)	Yes	Magee & McCleery, 1937	No
<i>Cercospora</i> sp. [Mitosporic fungi]	leaf spot	Brazil (Ponte & Castro, 1976)	No		Yes
<i>Cladosporium oxysporum</i> Berk. & M.A. Curtis [Mitosporic fungi]	leaf spot	Brunei (Peregrine & Ahmad, 1982); Venezuela (Urtiaga, 1986)	Yes	Jones, 1991	No
<i>Clonostachys</i> sp. [Mitosporic fungi]		Malaysia (Singh, 1980)	No		Yes
<i>Colletotrichum ananas</i> Garud [Mitosporic fungi]	spot anthracnose	India (Garud, 1968); USA (Hawaii (Rohrbach & Apt, 2001))	No		Yes
<i>Colletotrichum capsici</i> (Syd.) Butler & Bisby Syn. = <i>Colletotrichum indicum</i> Dastur; <i>Vermicularia capsici</i> Syd. [Mitosporic fungi]	leaf tip dieback	Bangladesh (Basak <i>et al.</i> , 1994; Mridha & Siddique, 1989); China (Chang & Chi, 1993); India (Ali & Saikia, 1991; Biswas, 1992; Chauhan & Duhan, 1986; Gupta, 1988; Joi & Sonone, 1980; Kumar & Mukhopdhyay, 1990; Mordue, 1971; Patil & Moniz, 1973; Prakasam, 1991; Rao, 1995; Rathaiah, 1987; Srivastava & Soni, 1993; Thind & Jhooty, 1987); Malaysia (herb. IMI, 1971; Singh, 1980); Nigeria (herb. IMI, 1961); Pakistan (Hashmi, 1989; Khaleeqe & Khan, 1991; Sultana <i>et al.</i> , 1992); Papua New Guinea (Pearson <i>et al.</i> , 1984); Sri Lanka (herb. IMI, 1973); Thailand (Juangbhanich & Chana, 1975; Roberts & Snow, 1990; Sangchote & Juangbhanich, 1984); Trinidad & Tobago (herb. IMI, 1991); USA (Cartwright, 1992; Farr <i>et al.</i> , 1989; McLean & Roy, 1991)	Yes	Shivas, 1989	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc. in Penz. Syn. = <i>Colletotrichum agaves</i> Cavara; <i>Gloeosporium affine</i> Sacc.; <i>Phyllosticta trillii</i> Ellis & Everh.; <i>Sphaeropsis lappae</i> Ellis & Everh. (unknown) [Mitosporic fungi]		Brazil (Mendes <i>et al.</i> , 1998); USA (Alfieri <i>et al.</i> , 1984)	Yes	Simmonds, 1966	No
<i>Colletotrichum</i> sp.	leaf anthracnose	India (Garud, 1968); Malaysia (Lim, 1985)	No		Yes
<i>Coniella fragariae</i> (Oudem.) Sutton Syn. = <i>Coniella pulchella</i> Hohn.; <i>Coniothyrium fragariae</i> Oudem.		South Africa (Shoemaker & Kokko, 1975)	No		Yes
<i>Corynespora cassiicola</i> Berk. & M.A. Curtis) C.T. Wei Syn. = <i>Cercospora vignicola</i> E. Kawamura; <i>Helminthosporium cassiicola</i> Berk. & M.A. Curtis; <i>Helminthosporium vignae</i> Olive [Mitosporic fungi]	target spot	Austria, Brazil, British Solomon Islands, Bolivia, Brunei, Bulgaria, Burma, Cameroon, Cambodia, Canada, Ceylon, China (Hong Kong), Colombia, Congo, Côte d'Ivoire, Cuba, Czechoslovakia, Dahomey, Denmark, Ethiopia, Fiji, France, French Guiana, Germany, Ghana, Guatemala, Guinea, Guyana, Honduras, India, Indonesia, Jamaica, Japan, Laos, Malaysia, Mauritius, Mexico, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Papua New Guinea, Philippines, Puerto Rico, Romania, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania, Thailand, Togo, Trinidad, Uganda, United Kingdom (England), USA, United States Virgin Islands, Venezuela, Western Samoa (Ellis & Holliday, 1971); Ghana (Hughes, 1952)	Yes	Ellis & Holliday, 1971; Simmonds, 1966	No
<i>Curvularia brachyspora</i> Boedijn		China (Taiwan) (Matsushima, 1980)	Yes	Hyde & Alcorn, 1993	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Curvularia eragrostidis</i> (P. Henn.) J.A. Meyer Syn. = <i>Curvularia maculans</i> (Bancroft) Boedijn; <i>Brachysporium eragrostidis</i> (Henn.) J.A. Meyer Teleomorph = <i>Cochliobolus eragrostidis</i> (Tsuda & Ueyama) Sivanesan [Mitosporic fungi]	leaf rot; leaf spot	India (Saikia & Roy, 1981); Malaysia (Johnston, 1960); Republic of Guinea (Kranz, 1965); USA (Hawaii (Rohrbach & Apt, 2001))	Yes	AQIS, 2000; CAB International, 2000	No
<i>Curvularia geniculata</i> (Tracy & Earle) Boedijn Teleomorph = <i>Cochliobolus geniculatus</i> Nelson [Dothideales: Pleosporaceae]		Malaysia (Singh, 1980)	Yes	Lenné, 1990	No
<i>Curvularia lunata</i> (Wakker) Boedijn Syn. = <i>Acrothecium lunatum</i> Wakk.; <i>Pseudocochliobolus lunatus</i> (R.R. Nelson & Haasis) Tsuda, Ueyama & Nishihara Teleomorph = <i>Cochliobolus lunatus</i> R.R. Nelson & Haasis [Mitosporic fungi]	leaf spot	Costa Rica, Guatemala, Mexico (Wellman, 1977); Ghana (Hughes, 1953); Malaysia (Johnston, 1960)	Yes	AQIS, 2000; CAB International, 2000	No
<i>Curvularia verruculosa</i> R.N. Tandon & K.S. Bilgrami ex M.B. Ellis Teleomorph = <i>Cochliobolus verruculosus</i> (Tsuda & Ueyama) Sivanesan [Mitosporic fungi]		Nigeria (Adisa, 1983; Adisa & Fajola, 1982)	Yes	Shivas, 1989	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Curvularia</i> sp. [Mitosporic fungi]		Cuba (Urtiaga, 1986); Fiji (Firman, 1972); Mexico (Alvarez, 1976)	No		Yes
<i>Cyclodorus comosi</i> [Mitosporic fungi]		China (Taiwan) (Anon., 1979b; Sawada, 1959)	No		Yes
<i>Dictyoarthrinium sacchari</i> (J.A. Stevenson) Damon Syn. = <i>D. quadratum</i> S.J. Hughes; <i>Tetracoccosporium sacchari</i> J.A. Stevenson [Mitosporic fungi]	saprophyte	Ghana (Hughes, 1952)	No		Yes
<i>Dictyothyria ananasicola</i> J.N. Kapoor & R.L. Munjal [Dothideales: Micropeltidaceae]		India (Sarbhoy <i>et al.</i> , 1971)	No		Yes
<i>Dinemasporium microsporium</i> Sacc. [Mitosporic fungi]		India (Pavgi & Gupta, 1967; Sarbhoy <i>et al.</i> , 1971)	No		Yes
<i>Drechslera hawaiiensis</i> (Bungicourt) Subra. & Jain ex M.B. Ellis Syn. = <i>Bipolaris hawaiiensis</i> (M.B. Ellis) Uchida & Aragaki Teleomorph = <i>Cochliobolus hawaiiensis</i> Alcorn [Mitosporic fungi]	leaf blight	India (Cheeran & Sasikumaran, 1972)	Yes	Alcorn, 1978	No
<i>Echidnodes bromeliacearum</i> (Rehm) Theiss. & Syd. Syn. = <i>Echidnodes bromeliae</i> Ryan; <i>Lembosia bromeliacearum</i> Rehm [Dothideales: Asterinaceae]	black mildew	Brazil (Hennings, 1904); Philippines (Reinking, 1918, 1919)	No		Yes

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<i>Fulvia fulva</i> (Cooke) Cif. Syn. = <i>Cladosporium fulvum</i> (Cooke) [Mitosporic fungi]		Mexico (Garcia-Espinosa, 1972); worldwide (Holliday & Mulder, 1976))	Yes	Simmonds, 1966	No
<i>Fusarium culmorum</i> (W.G. Smith) Sacc. Syn. = <i>Fusarium roseum</i> Link ex. Fr. Teleomorph = <i>Gibberella zeae</i> (Schwein) Petch [Mitosporic fungi]		Brazil (Dianese <i>et al.</i> , 1981b; Mendes <i>et al.</i> , 1998); Canada, Channel Islands, Chile, Denmark, Egypt, France, Greece, Iraq, Ireland, Israel, Libya, Malta, Netherlands, New Zealand, Poland, Portugal, Romania, Russian Federation, South Africa, Spain, Sweden, Syria, Tanzania, Tunisia, Turkey, United Kingdom, Zimbabwe (CAB International, 2000)	Yes	AQIS, 2000; CAB International, 2000	No
<i>Fusarium guttiforme</i> Nirenberg & O'Donnell [Mitosporic fungi]		Brazil, England, USA (Hawaii) (Nirenberg & O'Donnell, 1998)	No		Yes
<i>Fusarium moniliforme</i> J. Sheldon Syn = <i>Fusarium moniliforme</i> var. <i>fici</i> P. Caldis; <i>Sporotrichum atropurpureum</i> Peck Teleomorph = <i>Gibberella fujikuroi</i> (Sawada) Ito [Mitosporic fungi]		Argentina, Brazil (Wellman, 1977); Honduras (Wollenweber & Reinking, 1925); South Africa (Gorter, 1977)	Yes	Simmonds, 1966	No
<i>Fusarium oxysporum</i> Schltdl. ex Fr. Syn = <i>Fusarium angustum</i> Sherb.; <i>Fusarium aurantiacum</i> (Link) Sacc.; <i>Fusarium oxysporum</i> var. <i>aurantiacum</i> (Link) Wollenweb. [Mitosporic fungi]		Argentina (Wellman, 1977); Brazil (Dianese <i>et al.</i> , 1981a, b; Mendes <i>et al.</i> , 1998)	Yes	Aberdeen, 1946	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Fusarium semitectum</i> Berk. & Rav. Syn. = <i>Fusarium pallidorozeum</i> (Cooke) Saccardo [Mitosporic fungi]	internal fruit rot	Australia (NT) (Pitkethley, 1998)	Yes	Pitkethley, 1998	No
<i>Fusarium solani</i> (Mart.) Sacc. Syn. = <i>Fusarium lathyri</i> Taubenhaus; <i>Fusarium malli</i> Taubenhaus Teleomorph = <i>Nectria haematococca</i> (Berk. & Broome) [Mitosporic fungi]		Brazil (Dianese <i>et al.</i> , 1981a, b; Mendes <i>et al.</i> , 1998); India (Sharma <i>et al.</i> , 1981); Kenya (Natrass, 1961)	Yes	AQIS, 2000	No
<i>Fusarium subglutinans</i> (Wollenweb. & Reinking) P.E. Nelson, T.A. Tousson & Marasas Syn. = <i>Fusarium sacchari</i> (E.J. Butler) W. Gams; <i>Cephalosporium sacchari</i> Butler; <i>Fusarium moniliforme</i> J. Sheld. var. <i>subglutinans</i> Wollenweb. & Reinking; <i>Fusarium neoceras</i> Wollenweb. & Reinking Teleomorph = <i>Gibberella fujikuroi</i> var. <i>subglutinans</i> Edwards; <i>Gibberella subglutinans</i> Nelson <i>et al.</i> [Mitosporic fungi]	fruitlet core rot; fusariosis; pineapple eye rot (Camargo & Camargo, 1974, Ventura <i>et al.</i> , 1981); fusariosis (Rohrbach & Apt, 2001); gummosis (Giacomelli <i>et al.</i> , 1969)	Brazil (Laville, 1980; Matos <i>et al.</i> , 1981; Mendes <i>et al.</i> , 1998; Perriot, 1980); Cuba (Perez <i>et al.</i> , 1994); Kenya (Kidd & Tomkins, 1928); Philippines (BPI, 2000); South America (Camargo & Camargo, 1974; Ventura <i>et al.</i> , 1981); USA (Hawaii) (Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994); gummosis – Brazil (Giacomelli <i>et al.</i> , 1969)	Yes (at least one strain is present in Australia)	Pegg, 1993; Pegg <i>et al.</i> , 1995; Simmonds, 1966	Yes
<i>Fusarium trichothecioides</i> Wollenweb. [Mitosporic fungi]	storage rot	USA (Hawaii (Sideris, 1928))	Yes	Maughan <i>et al.</i> , 1991	No

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<i>Fusarium</i> sp. [Mitosporic fungi]	fruit collapse; heart rot	Africa (Evans, 1939; Kidd & Tomkins, 1928); Azores (Kidd & Tomkins, 1928); Brazil (Mendes <i>et al.</i> , 1998); China (Taiwan (Anon., 1979b)); Cuba (Arnold, 1986; Roefs, 1912); Fiji (Firman, 1972); India (Gurunath Rao, 1966); Jamaica (Hansford, 1923); Kenya (Kidd & Tomkins, 1928); Malaysia (Singh, 1980); Malaysia (Thompson, 1937); Mexico (Alvarez, 1976; Anon., 1911); Puerto Rico (Matz, 1920); Tanzania (Kidd & Tomkins, 1928); Thailand (Giatgong, 1980); USA (Hawaii (Anon., 1960; Higgins, 1912; Larsen, 1910a, b; Raabe <i>et al.</i> , 1981; Sideris, 1928, 1926), Florida (Alfieri <i>et al.</i> , 1984))	Yes	Kidd & Tomkins, 1928; Simmonds, 1938, 1940	No
<i>Gliomastix luzulae</i> (Fuckel) Mason ex Hughes Syn. = <i>Fusidium viride</i> Grove; <i>Torula luzulae</i> Fuckel [Mitosporic fungi]		Malaysia (Singh, 1980)	No		Yes
<i>Hendersonula toruloidea</i> Natrass Syn. = <i>Nattrassia mangiferae</i> [Mitosporic fungi]	Hendersonula fruit rot; leaf spot	Malaysia (Lim, 1985; Singh, 1980); Tanzania (Ebbels & Allen, 1979); USA (Hawaii (Rohrbach & Apt, 2001))	Yes	Wade <i>et al.</i> , 1993	No
<i>Hymenula affinis</i> (Fautrey & Lambotte) Wollenweb. Syn. = <i>Fusarium affine</i> Fautrey & Lambotte [Mitosporic fungi]		USA (Hawaii (Raabe <i>et al.</i> , 1981))	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Lasiodiplodia theobromae</i> (Pat.) Griffon & Maubl. Syn. = <i>Botryodiplodia theobromae</i> Pat.; <i>Diplodia theobromae</i> (Pat.) W. Nowell; <i>Diplodia natalensis</i> Pole-Evans; <i>Diplodia gossypina</i> Cooke; <i>Diplodia cacaoicola</i> Henn.; <i>Macrophomina vestita</i> Prillinger & Delacr.; <i>Lasiodiplodia tubericola</i> Ellis & Everh.; <i>Diplodia tubericola</i> (Ellis & Everh.) Taubenh.; <i>Botryodiplodia tubericola</i> (Ellis & Everh.) Petr.; <i>Botryodiplodia gossypii</i> Ellis & Barthol; <i>Botryodiplodia elasticae</i> Petch; <i>Chaetodiplodia grisea</i> Petch; <i>Lasiodiplodia triflorae</i> B. B. Higgins; <i>Diplodia ananassae</i> Sacc; <i>Botryodiplodia ananassae</i> (Sacc.) Petr. Teleomorph = <i>Botryosphaeria rhodina</i> (Cooke) Arx; <i>Phyalospora rhodina</i> Berk. & M.A. Curtis [Mitosporic fungi]	Botryodiplodia rot; leaf blight; leaf spot; storage fruit rot	Algeria, Argentina, Bangladesh, Bhutan, Bolivia, Brazil, Cameroon, China, Colombia, Congo Democratic Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, France, Gabon, Gambia, Guam, Guatemala, Guinea, Guyana, Honduras, Iran, Israel, Italy, Kenya, Laos, Libya, Madagascar, Malawi, Mauritius, Mozambique, Nepal, Nicaragua, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Philippines, Russian Federation, Saint Lucia, Saint Vincent & the Grenadines, Senegal, Seychelles, Solomon Islands, South Africa, Spain, Sudan, Swaziland, Tanzania, Togo, United Kingdom, Venezuela, Zambia, Zanzibar, Zimbabwe (CMI, 1985); Antigua & Barbuda, Barbados, Cuba, Dominican Republic, French West Indies, Martinique, Suriname (EPPO, 1994); Brunei Darussalam (CMI, 1985; Peregrine & Ahmad, 1982); Congo (Boher <i>et al.</i> , 1981); Costa Rica (Araya <i>et al.</i> , 1988); Ghana (CMI, 1985; Hughes 1953); Grenada, Haiti, Trinidad & Tobago (CMI, 1985; EPPO, 1994); India (CMI, 1985; Mathur, 1979; Tandon & Bhargava, 1962); Jamaica (EPPO, 1994; Wellman, 1977); Indonesia (CMI, 1985; Ministry of Agriculture, 1999); Japan (CMI, 1985; Matsushima 1975); Malaysia (CMI, 1985; Singh, 1980); Mexico (CAB International, 2000); Peru (Icochea <i>et al.</i> , 1995); Puerto Rico (CMI, 1985; EPPO, 1994; Wellman, 1977); Uganda (Otim-Nape, 1984); USA (Fraedrich & Miller, 1995; Sandlin & Ferrin, 1992) (Hawaii (Rohrbach & Apt, 2001)); Virgin Islands (Wellman, 1977)	Yes	AQIS, 2000; CAB International, 2000; CMI, 1985	No
<i>Leptothyrium indicum</i> Pavgi & P. Gupta [Mitosporic fungi]		India (Pavgi & Gupta, 1967)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Macrophomina phaseolina</i> (Tassi) Goidanich Syn. = <i>Macrophoma phaseolina</i> Tassi; <i>Macrophoma phaseoli</i> Maubl.; <i>Botryodiplodia phaseoli</i> (Maubl.) Thirumalachar; <i>Sclerotium bataticola</i> Taubenhause; <i>Rhizoctonia bataticola</i> (Taubenhause) Butler [Mitosporic fungi]	charcoal root rot	Malaysia (Singh, 1980); widespread in the tropics and subtropics (Holliday & Punithalingam, 1970)	Yes	Ali & Dennis, 1992; Shivas, 1989	No
<i>Marasmiellus scandens</i> (Mass.) Dennis & Reid [Agaricales: Tricholomataceae]	white thread blight	Malaysia (Singh, 1980)	No		Yes
<i>Marasmius equicrinis</i> F. Muell. ex Berk. Syn. = <i>Marasmius crinisequi</i> F. Muell. ex Kalchbr. [Agaricales: Tricholomataceae]	horse hair blight	Malaysia (Singh, 1980; Turner, 1971)	Yes	CAB International, 2000	No
<i>Marasmius palmivorus</i> Sharples [Agaricales: Tricholomataceae]	chlorosis; fruitlet brown rot	Malaysia (Singh, 1980)	No		Yes
<i>Marasmius sacchari</i> Wakker [Agaricales: Tricholomataceae]		Puerto Rico, Virgin Islands (Stevenson, 1975)	Yes	Cottrell-Dormer, 1924; Simmonds, 1966	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Mariannaea elegans</i> (Corda) R.A. Samson Syn. = <i>Paecilomyces elegans</i> (Corda) Mason & Hughes; <i>Penicillium elegans</i> Corda; <i>Spicaria elegans</i> var. <i>sorghina</i> Sacc. Teleomorph = <i>Nectria mariannaea</i> Samuels & Seifert [Mitosporic fungi]	basal leaf rot	Malaysia (Singh, 1980)	No		Yes
<i>Microdiplodia ananasae</i> S. Singh & G.P. Agarwal		India (Mathur, 1979)	No		Yes
<i>Myiocopron pandani</i> Hohn.		India (Pavgi & Gupta, 1967)	No		Yes
<i>Myrothecium roridum</i> Tode Syn = <i>Gliocladium nigrum</i> Moreau & Moreau; <i>Myrothecium advena</i> Sacc. [Mitosporic fungi]		India (Pavgi & Gupta, 1967); widespread (Fitton & Holliday, 1970)	Yes	Lenné, 1990	No
<i>Nectria ananatis</i> Seaver & Chardon		Puerto Rico, Virgin Islands (Stevenson, 1975)	No		Yes
<i>Nigrospora</i> sp.		Dominican Republic (Systematic Botany & Mycology Laboratory website, 2001)	?		Yes
<i>Nigrospora sphaerica</i> (Sacc.) E. Mason Syn. = <i>Khuskia oryzae</i> Huds., <i>Epicoccum levisporum</i> Pat.; <i>Hadrotrichum arundinaceum</i> Cooke & Massee; <i>Trichosporium sphaerica</i> Sacc.	storage fruit rot; Nigorspora fruit rot	Côte d'Ivoire (Bur-Ravault & Brun, 1964); Ghana (Hughes, 1952); Malaysia (Peregrine & Ahmad, 1982); USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	AQIS, 2000; Simmonds, 1966	No
<i>Penicillium claviforme</i> Bainier [Mitosporic fungi]		Nigeria (Adisa, 1983; Adisa & Fajola, 1982)	No	AQIS, 2000	Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Penicillium dangeardii</i> J. Pitt Syn. = <i>P. vermiculatum</i> P.A. Dang. Teleomorph = <i>Talaromyces flavus</i> (Klocker) A.C. Stolk & R.A. Samson [Mitosporic fungi]		Cosmopolitan (Systematic Botany & Mycology Laboratory website, 2001)	No		Yes
<i>Penicillium funiculosum</i> Thom [Mitosporic fungi]	black spot of pineapple; fruitlet core rot; interfruitlet corking; leathery pocket	Cuba (Arnold, 1986; Zaldivar, 1977); Malaysia (Lim, 1983, 1985); Philippines (BPI, 2000); South Africa (Gorter, 1977); USA (Hawaii) (Hepton & Anderson, 1968; Lim & Rohrbach, 1980; Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994)	Yes	Pegg, 1993; Pegg <i>et al.</i> , 1995; Simmonds, 1966	No
<i>Penicillium manginii</i> Duche & R. Heim. Syn. = <i>P. lapidosum</i> (Raper & Fennel) G. Sm., <i>P. pedemontatum</i> Luppi-Mosca & A. Fontana; <i>P. sulfureum</i> Sopp ex Biourge [Mitosporic fungi]		Africa (Moreau, 1948)	No		Yes
<i>Penicillium pinophilum</i> Hedgc. [Mitosporic fungi]		Hawaii (Raabe <i>et al.</i> , 1981)	No		Yes
<i>Penicillium purpurogenum</i> O. Stoll Syn. = <i>Penicillium rubrum</i> O. Stoll [Mitosporic fungi]		India (Damayanti <i>et al.</i> , 1992); Japan (CAB International, 2000); Sri Lanka (Dahanayaka & Wijesundera, 1994)	No	AQIS, 2000	Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Periconia byssoides</i> Persoon ex Merat Syn. = <i>Periconia botrytiformis</i> Fresen.; <i>Periconia pycnospora</i> Fresen. [Mitosporic fungi]		Brunei (Peregrine & Ahmad, 1982)	No		Yes
<i>Periconia effusa</i> (Berk & Broome) E. Mason & M.B. Ellis [[Mitosporic fungi]]		Ghana (Hughes, 1949b)	No		Yes
<i>Periconia minutissima</i> Corda Syn. = <i>P. chlorocephala</i> f. <i>minor</i> Sacc.; <i>P. fusca</i> f. <i>minutissima</i> (Corda) Rabenh. [Mitosporic fungi]		United Kingdom (Hughes, 1953)	No		Yes
<i>Pestalotia ananas</i> Sawada [Mitosporic fungi]		China (Taiwan) (Anon., 1979b; Nag-raj, 1993; Sawada, 1959)	No		Yes
<i>Pestalotia microspora</i> Ellis & Everh. [Mitosporic fungi]		Bermuda (Guba, 1961); India (Rao & Mhaskar, 1973)	No		Yes
<i>Pestalotia sphaerelloides</i> Ellis & Langl. (nom. nud.) [Mitosporic fungi]		Cuba (Arnold, 1986)	No		Yes
<i>Pestalotia</i> sp. [Mitosporic fungi]	yellow leaf spot	Dominican Republic (Systematic Botany & Mycology Laboratory website, 2001); Japan (Matsushima, 1975); USA (Hawaii) (Raabe <i>et al.</i> , 1981)	Yes (genus is present in Australia)	Magee & McCleery, 1937; Pitkethley, 1998; Simmonds, 1966	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pestalotiopsis adusta</i> (Ellis & Everh.) Steyaert Syn. = <i>Pestalotia adusta</i> Ellis & Everh.; <i>Pestalotia kalmicola</i> Ellis & Everh.; <i>Pestalotia vaccinicola</i> Guba [Mitosporic fungi]		India (Mathur, 1979)	No		Yes
<i>Pestalotiopsis funerea</i> (Desmaz.) Steyaert Syn. = <i>Pestalotia funerea</i> Desmaz.; <i>Pestalotia polychaetia</i> Cooke & Harkn.) [Mitosporic fungi]		Belgium, Bermuda, Canada, Ecuador, Italy, Japan, Kenya, Netherlands, New Zealand, Rhodesia, Romania, South Africa, Spain, Tanzania, United Kingdom, USA, USSR, Zaire, Zambia (Mordue, 1976); Virgin Islands (Camara, 1929a, b)	Yes	Choate, 1964; Mordue, 1976	No
<i>Pestalotiopsis guepinii</i> (Kleb.) Sutton (<i>Pestalotia guepinii</i>) [Mitosporic fungi]		China (Tai, 1979)	Yes	Bailey, 1892	No
<i>Pestalotiopsis neglecta</i> (Thum.) Steyaert Syn. = <i>Pestalotiopsis microspora</i> (Speg.) Batista & Peres; <i>Pestalotia bromeliicola</i> Speg.; <i>P. neglecta</i> Thum. [Mitosporic fungi]	leaf blotch	Bermuda (Guba, 1961); India (Rao & Mhaskar, 1973)	Yes	Yuan, 1996	No
<i>Phialophora richardsiae</i> (Nannf.) Conant [Mitosporic fungi]		Asia, Europe, North America, Canada, China, France, Japan, Malaysia, Netherlands, Sweden, USA (Florida, Illinois) (Williams, 1991); India (Sharma <i>et al.</i> , 1981)	Yes	Williams, 1991	No
<i>Phoma comosa</i> Pavgi & Gupta [Mitosporic fungi]		India (Pavgi & Gupta, 1967)	No		Yes
<i>Phomopsis</i> sp. [Mitosporic fungi]		Malaysia (Singh, 1980); Mexico (Systematic Botany & Mycology Laboratory website, 2001)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Phyllosticta ananassae</i> Sawada [Mitosporic fungi]		China (Taiwan) (Anon., 1979b; Sawada, 1959)	No		Yes
<i>Phyllosticta</i> sp.	leaf spot	USA (Florida) (Alfieri <i>et al.</i> , 1984)	No		Yes
<i>Phytophthora cinnamomi</i> Rands [Pythiales: Pythiaceae]	green fruit rot; Phytophthora heart rot; root rot	Brazil, Central America (Wellman, 1977); Fiji (Firman, 1972); China (Yang & Zhou, 1998) (Taiwan (Anon., 1979b)); Côte d'Ivoire (Frossard, 1967); Cuba (Diaz <i>et al.</i> , 1980); Fiji (Zentmyer & Thorn, 1967); Philippines (Torres, 1993); South Africa (Gorter, 1977; Rohrbach & Schmitt, 1994); USA (Hawaii) (Anderson, 1951a; Anon., 1960; Klemmer & Nakano, 1964; Lewcock, 1935; Linford & Spiegelberg, 1933; Mehrlich, 1932; Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994; Thorn & Zentmyer, 1954; Tucker, 1933)	Yes	Lewcock, 1935; Oxenham, 1957, 1962; Pegg, 1993; Pegg <i>et al.</i> , 1995; Simmonds, 1938, 1940, 1966	No
<i>Phytophthora citrophthora</i> (R.E. Sm. & E.H. Sm.) Leonian Syn. = <i>Pythiacystis citrophthora</i> R.E. Sm. & E.H. Sm. [Pythiales: Pythiaceae]	heart rot	Mexico (Garcia-Espinosa & Adam, 1972); USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	Yes	CAB International, 2000; Simmonds, 1966	No
<i>Phytophthora drechsleri</i> Tucker Syn = <i>Pythium teratosporon</i> Sideris; <i>Phytophthora melonis</i> Katsura [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	Yes	Bumbieris, 1974; Shivas, 1989	No
<i>Phytophthora meadli</i> W. McRae [Pythiales: Pythiaceae]	heart rot	China, India, Iran, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam (CMI, 1989); Cuba (Diaz <i>et al.</i> , 1980); USA (Hawaii) (CMI, 1989; Mehrlich 1932; Sideris, 1929; Tucker, 1933)	Yes	CMI, 1989	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Phytophthora nicotianae</i> Breda de Haan Syn. = <i>Phytophthora nicotianae</i> var. <i>parasitica</i> (Dastur) G.M. Waterhouse; <i>Phytophthora parasitica</i> Dastur; <i>Phytophthora parasitica</i> var. <i>nicotianae</i> (Breda de Haan) Tucker; <i>Phytophthora melongenae</i> Sawada; <i>Phytophthora parasitica</i> var. <i>piperina</i> Dastur; <i>Phytophthora parasitica</i> var. <i>piperina</i> Dastur; <i>Phytophthora rhei</i> G.H. Godfrey; <i>Phytophthora ricini</i> Sawada; <i>Phytophthora allii</i> Sawada; <i>Phytophthora formosana</i> Sawada; <i>Phytophthora imperfecta</i> var. <i>nicotianae</i> (Breda de Haan) Sarej; <i>Phytophthora lycopersici</i> Sawada; <i>Phytophthora manoana</i> Sideris; <i>Phytophthora terrestris</i> Sherb [Pythiales: Pythiaceae]	Phytophthora heart rot; root rot	Barbados (Norse, 1974); China (Taiwan) (Anon., 1979b); Colombia (Uribe, 1940); Côte d'Ivoire (Frossard, 1967); Cuba (Arnold, 1986; Bruner, 1923, 1931; Diaz <i>et al.</i> , 1980); Fiji (Firman, 1972); France (Labrousse, 1933); Jamaica (Martyn, 1942; Smith, 1933; Wellman, 1977); Malaysia (Belgrave, 1939); Puerto Rico (Cook, 1939); Mexico (Alvarez, 1976; Garcia-Espinosa & Adam, 1972); Philippines (Quebral <i>et al.</i> , 1962; Torres, 1993); South Africa (Zentmyer & Thorn, 1967); Thailand (Giatgong, 1980; Suzui <i>et al.</i> , 1979a, b); USA (Hawaii) (Anon., 1960; Arnold, 1986; Klemmer & Nakano, 1964; Mehrlich, 1932; Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994; Sideris, 1929; Tucker, 1933); Venezuela (Wellman, 1977); West Indies (Wellman, 1977)	Yes	Pegg, 1993; Simmonds, 1966	No
<i>Phytophthora palmivora</i> (Butler) Butler [Pythiales: Pythiaceae]	Phytophthora heart rot; root rot	Cuba (Diaz <i>et al.</i> , 1980); Malaysia (Belgrave, 1939); Thailand (Suzui <i>et al.</i> , 1979a, b); USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994; Tucker, 1933)	Yes	Teakle, 1957	No
<i>Phytophthora</i> sp. [Pythiales: Pythiaceae]		Brazil (Bitancourt, 1937); Jamaica (Hansford, 1923, 1924); Philippines (Roldan, 1925, 1933; Teodoro, 1937); USA (Hawaii) (Lewcock, 1935; Lorimer & Linford, 1931; Mehrlich, 1932; Sideris, 1928, 1929; Tucker, 1933)	Yes	Veitch & Simons, 1929	No
<i>Pilobolus crystallinus</i> (A. Wigg.) Tode: Fr. [Mucorales: Pilobolaceae]		Papua New Guinea (Shaw, 1984)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pithomyces maydicus</i> (Sacc.) M.B. Ellis Syn. = <i>Clasterosporium maydicum</i> Sacc. [Mitosporic fungi]		Japan (Matsushima, 1975)	No		Yes
<i>Pithomyces sacchari</i> (Speg.) M.B. Ellis Syn. = <i>Sporidesmium bakeri</i> var. <i>sacchari</i> (Speg.) S.J. Hughes; <i>Sporidesmium sacchari</i> Speg.; <i>Stigmella sacchari</i> Speg. [Mitosporic fungi]		Ghana, Sierra Leone (Ellis, 1960)	No		Yes
<i>Prillieuxina stuhlmannii</i> (Henn.) Arx Syn. = <i>Asterina stuhlmannii</i> Henn.; <i>Asterinella stuhlmannii</i> (Henn.) Theiss. (Dothideales: Asterinaceae)	leaf spot	Africa (Deighton, 1937; Hennings, 1905); China (Tai, 1979) (Taiwan (Sawada, 1959)); India (Sydow & Butler, 1911); Malaysia (Singh, 1980); Philippines (Baker, 1916); Portugal (Theissen, 1912); Puerto Rico (Stevenson, 1975); Sierra Leone (Systematic Botany & Mycology Laboratory website, 2001); Virgin Islands (Stevenson, 1975)	No		Yes
<i>Pseudocochliobolus eragrostidis</i> Tsuda & Ueyama Syn. = <i>Curvularia eragrostidis</i> (P. Henn.) J.A. Meyer; <i>Curvularia maculans</i> (Bancroft) Boedijn; <i>Brachysporium eragrostidis</i> (Henn.) J.A. Meyer Teleomorph = <i>Cochliobolus eragrostidis</i> (Tsuda & Ueyama) Sivanesan [Mitosporic fungi]	leaf rot; leaf spot	India (Saikia & Roy, 1981); Malaysia (Johnston, 1960); Republic of Guinea (Kranz, 1965); USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	AQIS, 2000; CAB International, 2000	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pythium acanthophoron</i> Sideris [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Plaats-Niterink, 1981; Raabe <i>et al.</i> , 1981; Sideris, 1932; Watson, 1971)	Yes	Shivas, 1989	No
<i>Pythium aphanidermatum</i> (Edson) Fitzpatrick Syn. = <i>Nematosporangium aphanidermatum</i> (Edson) Fitzp.; <i>Pythium butleri</i> L. Subramanian; <i>Rheosporangium aphanidermatum</i> Edson [Pythiales: Pythiaceae]	heart rot	Argentina, Austria, Azerbaijan, Brazil, Canada, Chile, China (Taiwan), Congo, Costa Rica, Côte d'Ivoire, Cyprus, former Czechoslovakia, Egypt, France, Ghana, Greater Antilles, Greece, India, Indonesia, Iran, Israel, Italy, Jamaica, Japan, Kenya, Lesser Antilles, Malawi, Malaysia, Mali, Mauritius, Mexico, Mozambique, Netherlands, New Caledonia, Nigeria, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Poland, Puerto Rico, Senegal, Sierra Leone, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Togo, United Arab Emirates, United Kingdom, former USSR, Venezuela, Vietnam, Yugoslavia, Zambia, Zimbabwe (CMI, 1978); USA (Hawaii) (Anon., 1960; CMI, 1978; Raabe <i>et al.</i> , 1981)	Yes	Bumbieris, 1972; CMI, 1978	No
<i>Pythium arrhenomanes</i> Drechs. Syn. = <i>Nematosporangium arrhenomanes</i> (Drechs.) Sideris; <i>Nematosporangium arrhenomanes</i> var. <i>hawaiiense</i> Sideris; <i>Nematosporangium epiphanosporon</i> Sideris [Pythiales: Pythiaceae]	root rot	USA (Hawaii) (Anderson, 1966; Anon., 1960; Klemmer & Nakano, 1964; Raabe <i>et al.</i> , 1981; Rohrbach & Schmitt, 1994)	Yes	Simmonds, 1966	No
<i>Pythium debaryanum</i> Hesse [Pythiales: Pythiaceae]	root rot	USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981; Sideris, 1932)	Yes	Simmonds, 1966	No
<i>Pythium graminicola</i> Subr. [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Klemmer & Nakano, 1964)	Yes	Cook & Dube, 1989	No
<i>Pythium hydnosporum</i> (Mont.) J. Schrot. Syn. = <i>Artotrogus hydnosporum</i> Mont.; <i>Pythium artotrogus</i> de Bary [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981; Sideris, 1932)	No		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pythium indigoferae</i> E.J. Butler [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	No		Yes
<i>Pythium intermedium</i> de Bary [Pythiales: Pythiaceae]		USA (Hawaii) (Raabe <i>et al.</i> , 1981)	Yes	Shivas, 1989	No
<i>Pythium irregulare</i> Buisman var. <i>hawaiiense</i> Sideris [Pythiales: Pythiaceae]		USA (Hawaii) (Sideris, 1932)	No		Yes
<i>Pythium mamillatum</i> Meurs [Pythiales: Pythiaceae]		Central African Republic, Germany, Netherlands, Spain, United Kingdom (Great Britain), US (Waterhouse & Waterston, 1966); USA (Hawaii) (Anon., 1960; Sideris, 1932; Waterhouse & Waterston, 1966)	Yes	Shivas, 1989; Waterhouse & Waterston, 1966	No
<i>Pythium megalacanthum</i> de Bary [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	No		Yes
<i>Pythium polymorphon</i> Sideris Syn. = <i>Pythium irregulare</i> Buisman [Pythiales: Pythiaceae]	root rot	Mexico (Garcia-Espinosa & Adam, 1972); USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981; Klemmer & Nakano, 1964); worldwide (CAB International, 2000)	Yes	CAB International, 2000	No
<i>Pythium rostratum</i> E.J. Butler Syn. = <i>Pythium diameson</i> Sideris [Pythiales: Pythiaceae]	root rot	USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	Yes	Cook & Dube, 1989	No
<i>Pythium spinosum</i> Sawada [Pythiales: Pythiaceae]	root rot	Queensland, Australia (Simmonds, 1966)	Yes	Simmonds, 1966	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pythium splendens</i> Braun Syn. = <i>Pythium splendens</i> H. Braun var. <i>hawaiianum</i> Sideris [Pythiales: Pythiaceae]		USA (Hawaii) (Anon., 1960; Klemmer & Nakano, 1964; Lorimer & Linford, 1931; Raabe <i>et al.</i> , 1981)	Yes	AQIS, 2000; CAB International, 2000	No
<i>Pythium torulosum</i> Coker & Patterson [Pythiales: Pythiaceae]		USA (Hawaii) (Klemmer & Nakano, 1964)	Yes	Shivas, 1989	No
<i>Pythium vexans</i> de Bary Syn. = <i>Pythium ascophallon</i> Sideris; <i>Pythium allantocladon</i> Sideris; <i>Pythium piperinium</i> Dastur; <i>Pythium polycladon</i> Sideris [Pythiales: Pythiaceae]	damping off	Papua New Guinea (CAB International, 2000; Shaw, 1984); USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981; Sideris, 1932)	Yes	Simmonds, 1966	No
<i>Pythium</i> sp. [Pythiales: Pythiaceae]		China (Taiwan) (Anon., 1979b); Malaysia (Belgrave, 1939; Lim, 1985); Philippines (BPI, 1999); USA (Hawaii) (Anon., 1960; Carpenter, 1919, 1920, 1921; McFarlane & Ching, 1920; Raabe <i>et al.</i> , 1981; Sideris, 1926; Sideris & Paxton, 1929)	? (genus is present in Australia)		Yes
<i>Rhizidiocystis ananasi</i> Sideris [Chytridiales: Incertae sedis]		USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981)	No		Yes
<i>Rhizopus oryzae</i> Went & Prinsen-Geerligs Syn. = <i>Rhizopus arrhizus</i> A. Fischer; <i>Rhizopus tritici</i> K. Saito [Mucorales: Mucoraceae]	Rhizopus rot	Nigeria (Adisa, 1983; Adisa & Fajola, 1982); USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	Simmonds, 1966	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Rhizopus stolonifer</i> (Ehrenb. ex Fr.) Lind Syn. = <i>Rhizopus nigricans</i> Ehrenb. [Mucorales: Mucoraceae]	Rhizopus rot	Africa (Magistad, 1931; Moreau, 1948); Nigeria (Adisa, 1983; Adisa & Fajola, 1982); USA (Hawaii) (Anon., 1960; Raabe <i>et al.</i> , 1981); worldwide (Lunn, 1977)	Yes	AQIS, 2000	No
<i>Rhizopus</i> sp.		USA (Hawaii) (Raabe <i>et al.</i> , 1981)	? (genus is present in Australia)		Yes
<i>Saccharomyces</i> sp. [Saccharomycetales: Saccharomycetaceae]	gummosis rot of pineapple; yeasty rot	Philippines (BPI, 1999)	Yes	Pegg, 1993; Pegg <i>et al.</i> , 1995	No
<i>Septobasidium westonii</i> Couch (nom. Illeg.)		Panama (Wellman, 1977)	No		Yes
<i>Spegazzinia sundara</i> Subramanian [Mitosporic fungi]		India (Ellis, 1971; Sarbhoy <i>et al.</i> , 1971)	No		Yes
<i>Spegazzinia tessartha</i> (Berk. & M.A. Curtis) Sacc. Syn. = <i>S. ornata</i> Sacc. [Mitosporic fungi]		Ghana, India, Kenya, Malaysia, New Guinea, Sierra Leone, Sudan, Tanzania, Trinidad & Tobago, Uganda, Venezuela, Zambia (Ellis, 1971); India (Pavgi & Gupta, 1967; Sarbhoy <i>et al.</i> , 1971); Puerto Rico, Virgin Islands (Stevenson, 1975);	Yes	Ellis, 1971	No
<i>Sporodum atropurpureum</i> Berk. & Curtis [Mitosporic fungi]		Ghana (Hughes, 1953)	No		Yes
<i>Stachybotrys parvispora</i> S.J. Hughes [Mitosporic fungi]		Ghana (Hughes, 1952)	No		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Stachylidium bicolor</i> Link ex Fr. Syn. = <i>Spondylocadium tenellum</i> Peck; <i>Stachylidium verticillatum</i> (Pers.) S.J. Hughes [Mitosporic fungi]		Malaysia (Singh, 1980); Papua New Guinea (Shaw, 1984)	No		Yes
<i>Steirochaete ananassae</i> Sacc. [Mitosporic fungi]		Philippines (Teodoro, 1937)	No		Yes
<i>Stilbella annulata</i> (Berk. & M.A. Curtis) Siefert Syn. = <i>S. elasticae</i> Kooders; <i>S. proliferans</i> F.L. Stevens; <i>Stilbum annulatum</i> Berk. & M.A. Curtis; <i>Stilbum carcinophthalmum</i> Berk. & M.A. Curtis [Mitosporic fungi]		Malaysia (Singh, 1980); cosmopolitan (Systematic Botany & Mycology Laboratory website, 2001)	No		Yes
<i>Stomiopeltis</i> sp. [Dothideales: Micropeltidaceae]	sooty mould	Malaysia (Singh, 1980)	No		Yes
<i>Trichobotrys effusa</i> (Berk. & Broome) Petch Syn. = <i>T. pannosa</i> Penz. & Sacc.; <i>Sporodum effusum</i> Berk. & Broome [Mitosporic fungi]		Ghana (Hughes, 1953); Papua New Guinea (Shaw, 1984)	No		Yes
<i>Trichoderma</i> sp. [Mitosporic fungi]	secondary mold	USA (Hawaii) (Lorimer & Linford, 1931; Raabe <i>et al.</i> , 1981)	? (genus is present in Australia)		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Trichoderma viride</i> Pers. ex Fr. Syn. = <i>Trichoderma lignorum</i> (Tode) C. Harz. Teleomorph = <i>Hypocrea rufa</i> (Persoon) Fr. [Mitosporic fungi]	secondary mold	Africa (Moreau, 1948); US (Anon., 1960); USA (Hawaii) (Raabe <i>et al.</i> , 1981)	Yes	Shivas, 1989	No
<i>Zygosporium oscheoides</i> Mont. [Mitosporic fungi]		United Kingdom (Hughes, 1952)	No		Yes
Bacteria					
<i>Acetobacter aceti</i> (Pasteur) Beijerinck, 1898 Syn. = <i>Acetobacter liquefaciens</i> ; <i>Mycoderma aceti</i> Pasteur 1864 [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	Philippines (Kontaxis, 1977; Kontaxis & Hayward, 1978); USA (Hawaii) (Cho <i>et al.</i> , 1980; Gossele & Swings, 1986; Rohrbach, 1989, Rohrbach & Schmitt, 1994)	Yes	Pegg <i>et al.</i> , 1995	No
<i>Acetobacter diazotrophicus</i> Gillis <i>et al.</i> [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	Brazil (Tapia-Hernandez <i>et al.</i> , 2000)	Yes	Chapman <i>et al.</i> , 1992	No
<i>Acetobacter oxydans</i> [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	USA (Hawaii) (Rohrbach, 1989; Rohrbach & Pfeiffer, 1975)	?		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Acetobacter pasteurianus</i> (Hansen) Beijerinck, 1916 Syn. = <i>Mycoderma pasteurianum</i> Hansen, 1979; <i>Pseudomonas pomi</i> Cole, 1959 [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	United Kingdom, USA (Bradbury, 1986)	Yes	Drysdale & Fleet, 1989	No
<i>Acetobacter peroxydans</i> Visser't Hooft [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	USA (Hawaii) (Rohrbach & Schmitt, 1994)	Yes	Pegg <i>et al.</i> , 1995	No
<i>Acetobacter</i> sp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	Philippines (Kontaxis, 1978); USA (Hawaii) (Rohrbach & Pfeiffer, 1976)	? (genus is present in Australia)	Pegg <i>et al.</i> , 1995	Yes
<i>Acetomonas</i> spp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	USA (Hawaii) (Hine, 1976)	?		Yes
<i>Enterobacter</i> sp. [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	USA (Hawaii) (Rohrbach & Pfeiffer, 1976)	?		Yes

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Erwinia ananas</i> Serrano, 1928 Syn. = <i>Bacillus ananas</i> Serrano, 1928; <i>Bacterium ananas</i> (Serrano) Burgvits, 1935; <i>Chromobacterium ananas</i> (Serrano) Krasil'nikov, 1949; <i>Erwinia herbicola</i> var. <i>ananas</i> (Serrano) Dye, 1969; <i>Pectobacterium ananas</i> (Serrano) Patel & Kulkarni, 1951; <i>Pantoea ananas</i> pv. <i>ananas</i> (Serrano) Mergaert, et al. [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	Bacterial fruitlet brown rot	Brazil, China (Taiwan), Guatemala, Guyana, Haiti, Malaysia, Mexico, Nigeria, Philippines, Puerto Rico (Bradbury, 1986); USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	Bradbury, 1986	No
<i>Erwinia carotovora</i> ssp. <i>carotovora</i> (Jones) Bergey et al., 1923 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	soft rot	USA (Hawaii) (Rohrbach & Apt, 2001)	Yes	Chandrashekar & Diriwaechter, 1984	No
<i>Erwinia carotovora</i> (L.R. Jones) Holland [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	fruit collapse; heart rot	Malaysia (Singh, 1980)	Yes (<i>Erwinia carotovora</i> ssp. <i>atroseptica</i> & <i>E. c.</i> ssp. <i>carotovora</i> are present in Australia)	Chandrashekar & Diriwaechter, 1984; Hughes & Steindl, 1977	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Erwinia chrysanthemi</i> pv. <i>paradisiaca</i> (Victoria & Barros, 1969) Dickey & Victoria, 1980 Syn. = <i>Erwinia musae</i> Warren, 1972 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	fruit soft rot of banana; rhizome rot; tipover	Colombia, Cuba, Guatemala, Honduras, Jamaica, Panama, Papua New Guinea (Bradbury, 1986); India (CAB Abstracts)	No		Yes
<i>Erwinia chrysanthemi</i> pv. <i>zeae</i> (Sabet, 1954) Victoria <i>et al.</i>, 1975 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	bacterial stalk rot	see CAB International, 2000	Yes	AQIS, 2000	No
<i>Erwinia chrysanthemi</i> Burkholder, McFadden & Dimock, 1953 Syn. = <i>Erwinia carotovora</i> subsp. <i>chrysanthemi</i> (Burkholder <i>et al.</i>) Dye, 1969; <i>Pectobacterium carotovorum</i> f. sp. <i>chrysanthemi</i> (Burkholder <i>et al.</i>) Dowson, 1957; <i>Pectobacterium carotovorum</i> var. <i>chrysanthemi</i> (Burkholder <i>et al.</i>) Graham & Dowson, 1960; <i>Pectobacterium chrysanthemi</i> (Burkholder <i>et al.</i>) Brenner, Steigerwalt, Miklos & Fanning, 1973 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	bacterial heart rot; fruit collapse	Malaysia (Lim, 1974a, b, 1978, 1983; 1985; Lim & Lowings, 1979; Lim & McNeil, 1986); Philippines (BPI, 2000); USA (Hawaii) (Rohrbach, 1989; Rohrbach & Schmitt, 1994)	Yes	AQIS, 2000	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Erwinia herbicola</i> (Löhnis) Dye, 1964 Syn. = <i>Bacterium herbicola</i> Löhnis, 1911; <i>Bacillus herbicola</i> (Löhnis) Stapp, 1928; <i>Bacterium herbicola aureum</i> Duggeli, 1904; <i>Flavobacterium herbicola</i> (Löhnis) Mack, 1936; <i>Pseudomonas herbicola</i> (Löhnis) de'Rossi, 1927; <i>Bacillus agglomerans</i> Beijerinck, 1888; <i>Enterobacter agglomerans</i> (Beijerinck) Ewing & Fife, 1972; <i>Pseudomonas agglomerans</i> (Beijerinck) Krasil'nikov, 1949; <i>Pantoea agglomerans</i> (Beijerinck 1888) Gavini <i>et al.</i> , 1989 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	fruitlet brown rot; marbling; pink disease (Simmonds, 1966)	Tanzania (Mabagala & Maerere, 1998); USA (Hawaii) (Cho <i>et al.</i> , 1978, 1980; Rohrbach, 1989; Rohrbach & Schmitt, 1994) Very widespread; it probably occurs wherever plants are grown (Bradbury, 1986)	Yes	CAB International, 2000; Pegg, 1993; Pegg <i>et al.</i> , 1995; Simmonds, 1966	No
<i>Erwinia</i> sp. [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	USA (Hawaii) (Rohrbach & Schmitt, 1994)	? (genus is present in Australia)		Yes
<i>Gluconobacter</i> sp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	USA (Hawaii) (Rohrbach & Pfeiffer, 1976)	? (genus is present in Australia)		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Gluconobacter oxydans</i> (Henneberg) De Ley, 1961 Syn. = <i>Bacterium oxydans</i> Henneberg, 1897; <i>Acetobacter oxydans</i> (Henneberg) Bergey <i>et al.</i> , 1923; <i>Acetomonas oxydans</i> (Henneberg) Shimwell & Carr, 1959; <i>Bacillus oxydans</i> (Henneberg) Migula, 1900 [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	Philippines (Kontaxis, 1977, 1978; Kontaxis & Hayward, 1978); USA (Hawaii) (Cho <i>et al.</i> , 1980; Rohrbach, 1989; Rohrbach & Schmitt, 1994) Probably worldwide with fruit-growing (Bradbury, 1986)	Yes	CAB International, 2000; Drysdale & Fleet, 1989	No
<i>Pantoea citrea</i> Kageyama <i>et al.</i> , 1996 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	Philippines (BPI, 2000; Cha <i>et al.</i> , 1997; Hine, 1976; Pujol & Kado, 1999)	No		Yes
<i>Pseudomonas ananas</i> Serrano, 1934 Syn. = <i>Bacterium ananas</i> Serrano, 1934; <i>Phytomonas ananas</i> Serrano, 1934; <i>Bacterium serranoi</i> Burgvits, 1936 [Zymobacteria: Pseudomonadales: Pseudomonadaceae]	fruit collapse; fruitlet black rot; heart rot	Central America, West Indies (Bradbury, 1986); Malaysia (Lim & McNeil, 1986; Singh, 1980); Philippines (Bradbury, 1986; Serrano, 1934)	Yes	CAB International, 2000	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Pseudomonas marginalis</i> (Brown) Stevens, 1925 Syn. = <i>Bacterium marginale</i> Brown, 1918; <i>Chorobacter marginalis</i> (Brown) Patel & Kulkarni, 1951; <i>Phytomonas marginalis</i> (Brown) Bergey <i>et al.</i>, 1923 [Zymobacteria: Pseudomonadales: Pseudomonadaceae]	Kansas lettuce disease	CAB International, 2000	Yes	Bradbury, 1986; CAB International, 2000	No
<i>Pseudomonas marginalis</i> (Brown) Stevens pv. <i>marginalis</i> Syn. = <i>Bacterium marginale</i> Brown, 1918; <i>Chorobacter marginalis</i> (Brown) Patel & Kulkarni, 1951; <i>Phytomonas marginalis</i> (Brown) Bergey <i>et al.</i>, 1923; <i>Phytomonas intybi</i> (Swingle) Elliott, 1930; <i>Chlorobacter intybi</i> (Swingle) Patel & Kulkarni, 1951; <i>Pseudomonas intybi</i> (Swingle) Stapp, 1928 [Zymobacteria: Pseudomonadales: Pseudomonadaceae]	lettuce marginal leaf blight	Argentina, Barbados, Bermuda, Brazil, Canada, Egypt, Ethiopia, France, Germany, Great Britain, Italy, Japan, Kenya, New Zealand, Nigeria, Spain, Tanzania, Uganda, USA (Bradbury, 1986)	Yes	Bradbury, 1986	No
Viruses					
Pineapple bacilliform virus	PBV	Australia (Thomson <i>et al.</i> , 1996)	Yes	Thomson <i>et al.</i> , 1996	
Pineapple wilt-associated (?) closterovirus Syn. = Pineapple mealybug wilt-associated (?) closterovirus	PMWaV	Cuba (Borrito <i>et al.</i> , 1998); Brazil (Nickel <i>et al.</i> , 2000); Malaysia (Lim, 1985); Sri Lanka (Dassanayake <i>et al.</i> , 1994); USA (Hawaii) (Carter, 1933; Gunasinghe & German, 1989; Hu <i>et al.</i> , 1997a, b; Rohrbach & Schmitt, 1994; Rohrbach <i>et al.</i> , 1988; Ullman <i>et al.</i> , 1989); cosmopolitan (Nakasone & Paull, 1998)	Yes (at least one serotype is present in Australia)	Pegg, 1993; Wakman <i>et al.</i> , 1995	Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
Pineapple chlorotic leaf streak (?) <i>nucleorhabdovirus</i>	PCLSV	Brazil (Brunt <i>et al.</i> , 1996 onwards; Kitajima <i>et al.</i> , 1975)	No		Yes
Tomato spotted wilt <i>tospovirus</i> Syn. = Dahlia oakleaf virus; Dahlia ringspot virus; Dahlia yellow ringspot virus; Groundnut ringspot virus; Mung bean leaf curl virus; Pineapple yellow spot virus; Watermelon silver mottle virus	TSWV	Afghanistan, Algeria, Argentina, Austria, Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, China (Taiwan), Côte d'Ivoire, Cyprus, former Czechoslovakia, Egypt, France, Germany, Greece, Guyana, Haiti, India, Ireland, Israel, Italy, Jamaica, Japan, Libya, Madagascar, Malaysia, Malta, Mauritius, Mexico, Nepal, the Netherlands, New Zealand, Niger, Nigeria, Pakistan, Papua New Guinea, Paraguay, Poland, Portugal, Puerto Rico, Réunion, Romania, Senegal, South Africa, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Tanzania, Thailand, Turkey, United Kingdom; USA (Hawaii) (Linford & Spiegelberg, 1933); former USSR, Uganda, Uruguay, former Yugoslavia, Zaire, Zimbabwe (Brunt <i>et al.</i> , 1996 onwards)	Yes	Brunt <i>et al.</i> , 1996 onwards; Pegg, 1993; Simmonds, 1966	No
Weeds					
<i>Acanthospermum hispidum</i> DC. [Asteraceae]	bristly star-bur		Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)
<i>Ageratum conyzoides</i> L. [Asteraceae]	goat weed; white-weed	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Amaranthus spinosus</i> L. [Amaranthaceae]	spiny amaranth	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Amaranthus viridis</i> (L.) Britton et al. [Amaranthaceae]	green amaranth	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Axonopus compressus</i> (Swartz) P. Beauvois [Poaceae]	tropical carpet grass		Yes	Australian Plant Name Index database, 2001	No
<i>Bidens pilosa</i> L. [Asteraceae]	bur-marigold	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Boerhavia erecta</i> L. [Nyctaginaceae]	erect spiderling	Philippines (BPI, 2000)	No		Yes
<i>Borreria alata</i> (Aubl.) DC. [Rubiaceae]			?		Yes
<i>Borreria erecta</i> [Rubiaceae]		Philippines (BPI, 2000)	?		Yes
<i>Borreria laevis</i> (Lam.) Griseb. [Rubiaceae]	woodland false buttonweed	Philippines (BPI, 2000)	No		Yes
<i>Borreria ocymoides</i> (Burm. f.) DC. [Rubiaceae]		Philippines (BPI, 2000)	No		Yes
<i>Cassia tora</i> L. [Caesalpiniaceae]	Java bean	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Cenchrus echinatus</i> L. [Poaceae]	hedgehog grass; southern sandbur	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Centrosema pubescens</i> Benth. [Fabaceae]	butterfly pea	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Chenopodium album</i> L. [Chenopodiaceae]	fat-hen		Yes	Australian Plant Name Index database, 2001	No
<i>Chloris barbata</i> Sw. [Poaceae]		Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Chromolaena odorata</i> (L.) R.M. King & H. Robbins [Asteraceae]	archangel; bitter-bush	Philippines (BPI, 2000)	No (incursion eradicated)		Yes

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Cleome rutidosperma</i> DC. [Capparidaceae]		Philippines (BPI, 2000)	No		Yes
<i>Commelina benghalensis</i> L. [Commelinaceae]	Benghal dayflower; tropical spiderwort		Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Commelina diffusa</i> Burm. f. [Commelinaceae]	creeping dayflower		No		Yes
<i>Convolvulus arvensis</i> L. Field B. Per. [Convolvulaceae]	bindweed		Yes	Australian Plant Name Index database, 2001	No
<i>Conyza canadensis</i> (L.) Cronquist [Asteraceae]	Canadian fleabane	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Crassocephalum crepidioides</i> (Benth.) S. Moore [Asteraceae]		Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Crotalaria mucronata</i> Desv. [Fabaceae]		Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Cynodon dactylon</i> (L.) Pers. [Asteraceae]	Bermuda grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Cyperus brevifolius</i> (Rottb.) Hassk. [Cyperaceae]	green kyllinga	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Cyperus compressus</i> L. [Cyperaceae]	annual sedge	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)
<i>Cyperus rotundus</i> L. [Cyperaceae]	coco sedge; nut sedge	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)
<i>Dactyloctenium aegyptium</i> (L.) Willd. [Poaceae]	coast button grass; Egyptian grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Datura stramonium</i> L. [Solanaceae]	Jamestown weed		Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Digitaria abyssinica</i> (Hochst. ex A. Rick.) Stapf. [Poaceae]	Abyssinian finger grass; African couch grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Digitaria ciliaris</i> (Retz.) Koeler [Poaceae]	southern crabgrass; tropical finger grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Digitaria sanguinalis</i> (L.) Scop. [Poaceae]	hairy crabgrass		No		Yes (restricted seed)
<i>Digitaria setigera</i> Roth [Poaceae]		Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Drymaria cordata</i> (L.) Willd. ex Roem. & Schult. [Caryophyllaceae]	heart-leaf drymary	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Echinochloa colona</i> (L.) Link [Poaceae]	jungle rice grass		Yes	Swain, 1973	No
<i>Eleusine indica</i> (L.) Gaertn. [Poaceae]	goose grass; wiregrass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Emilia sonchifolia</i> (L.) DC. ex Wight [Asteraceae]	consumption weed; red-tassel flower		Yes	Australian Plant Name Index database, 2001	No
<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult. [Poaceae]	feather tumble grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)
<i>Euphorbia hirta</i> L. [Euphorbiaceae]	garden spurge	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Hedyotis biflora</i> (L.) Lam. [Rubiaceae]		Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Heliotropium indicum</i> L. [Boraginaceae]	Indian heliotrope		Yes	Australian Plant Name Index database, 2001	No
<i>Hibiscus trionum</i> L. [Malvaceae]	flower-of-an-hour		Yes	Australian Plant Name Index database, 2001	No
<i>Hyptis brevipes</i> Poit. [Lamiaceae]		Philippines (BPI, 2000)	No		Yes
<i>Hyptis capitata</i> Jacq. [Lamiaceae]	knobweed	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Hyptis suaveolens</i> (L.) Poit. [Lamiaceae]	horehound	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Imperata cylindrica</i> (L.) Raeusch. [Poaceae]	cogon grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Ipomoea triloba</i> L. [Convolvulaceae]	three-lobed morning glory	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Lantana camara</i> L. [Verbenaceae]	lantana; shrub verbena		Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Leptochloa chinensis</i> (L.) Nees [Poaceae]	Asian sprangletop; Chinese sprangletop		Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Ludwigia octovalvis</i> (Jacq.) P.H. Raven [Onagraceae]	primrose willow	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (species prohibited until assessed)
<i>Macroptilium atropurpureum</i> (DC.) Urb. [Fabaceae]	purple bean	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Melastoma malabathricum</i> L. [Melastromataceae]	Indian rhododendron; pink lasiandra		Yes	Australian Plant Name Index database, 2001	No
<i>Mimosa invisa</i> Mart. ex Colla [Fabaceae]	giant sensitive plant	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Mimosa pudica</i> L. [Fabaceae]	sensitive plant	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Momordica charantia</i> L. [Cucurbitaceae]	balsam-apple; bitter gourd	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Nicandra physalodes</i> (L.) Gaertn. [Solanaceae]	apple-of-Peru		Yes	Australian Plant Name Index database, 2001	No
<i>Oxalis corniculata</i> L. [Oxalidaceae]	creeping yellow woodsorrel	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Panicum maximum</i> Jacq. [Poaceae]	guinea grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Panicum purpurascens</i> Raddi [Poaceae]	Pará grass		No		Yes (restricted seed)
<i>Panicum repens</i> L. [Poaceae]	torpedo grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Paspalum conjugatum</i> Berguis [Poaceae]	buffalo grass; sour grass		Yes	Australian Plant Name Index database, 2001	No
<i>Paspalum urvillei</i> Steud. [Poaceae]	Vasey's grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Passiflora foetida</i> L. [Passifloraceae]	stinking passion flower		Yes	Australian Plant Name Index database, 2001	No
<i>Pennisetum polystachyon</i> (L.) Schult. [Poaceae]	mission grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Pennisetum purpureum</i> Schumach. [Poaceae]	elephant grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)

Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Rhynchelytrum repens</i> (Willd.) C.E. Hubb. [Poaceae]	Natal grass	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Rottboellia cochinchinensis</i> (Lour.) W. Clayton [Poaceae]	itch grass		Yes	BSES, 1985	No
<i>Saccharum spontaneum</i> L. [Poaceae]	wild sugarcane	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (prohibited weed)
<i>Setaria parviflora</i> (Poir.) Kerguelen [Poaceae]	knotroot foxtail		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Setaria pumila</i> (Poir.) Roem. & Schult. [Poaceae]	yellow foxtail		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Setaria verticillata</i> (L.) P. Beauvois [Poaceae]	bristly foxtail		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Sida acuta</i> Burm. f. [Malvaceae]	broomweed		Yes	Australian Plant Name Index database, 2001	No
<i>Sida rhombifolia</i> L. [Malvaceae]	arrow-leaf sida; Cuban jute	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Solanum nigrum</i> L. [Solanaceae]	black nightshade	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Solanum torvum</i> Swartz [Solanaceae]	turkey berry		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)

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Pest	Common name	Distribution	Present in Australia	Reference	Consider further?
<i>Sorghum halepense</i> (L.) Pers. [Poaceae]	Egyptian millet; Johnson grass		Yes	Australian Plant Name Index database, 2001	Yes (restricted seed)
<i>Stachytarpheta jamaicensis</i> (L.) J. Vahl [Verbenaceae]	Jamaican vervain	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Synedrella nodiflora</i> (L.) Gaertner [Asteraceae]	synedrella	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Tagetes minuta</i> L. [Asteraceae]	stinking Roger; wild marigold		Yes	Australian Plant Name Index database, 2001	No
<i>Trianthema portulacastrum</i> L. [Aizoaceae]	horse-purslane	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Trichachne insularis</i> (L.) Nees [Poaceae]	sour grass	Philippines (BPI, 2000)	No		Yes
<i>Tridax procumbens</i> L. [Asteraceae]	tridax daisy	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No
<i>Vernonia cinerea</i> (L.) Less. [Asteraceae]	little ironweed	Philippines (BPI, 2000)	Yes	Australian Plant Name Index database, 2001	No

APPENDIX 3: PEST CATEGORISATION FOR PINEAPPLES (PATHWAY ASSOCIATION)

Note: Biosecurity Australia will review these tables during the course of the IRA process

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
Arthropoda					
<i>Adoretus ictericus</i> Burmeister, 1844 [Coleoptera: Scarabaeidae]	white grub	No	Larvae feed on the roots.	Smith <i>et al.</i> , 1995	No
<i>Adoretus sinicus</i> Burmeister, 1855 [Coleoptera: Scarabaeidae]	Chinese rose beetle	Yes	Adults feed on leaves.	Rohrbach, 1983	Yes
<i>Adoretus tessulatus</i> Burmeister, 1855 [Coleoptera: Scarabaeidae]	pineapple white grub	No	This species feeds on the roots.	Petty, 1976	No
<i>Anagyrus coccidivorus</i> Dozier [Hymenoptera: Encyrtidae]	parasitic wasp	No	This species is a parasitic wasp.	Gonzalez-Hernandez <i>et al.</i> , 1999	No
<i>Anomala</i> sp. [Coleoptera: Scarabaeidae]	white grub	No	This species feeds on the roots.	BPI, 2000	No
<i>Anomocaulus fulvovestitus</i> Fairmaire, 1878 [Coleoptera: Scarabaeidae]	pineapple borer	Yes	Feeds on leaf bases and stems.	Swain, 1971; Watt, 1986	Yes
<i>Araucomyrmex</i> sp. [Hymenoptera: Formicidae]	ant	Yes	Associated with mealybugs and wilt on leaves.	Nakasone & Paull, 1998; Rai & Sinha, 1980	Yes
<i>Asca pineta</i> De Leon [Acarina: Ascidae]	mite	No	This species is a predatory mite.	Sanches & Flechtmann, 1982; Walter <i>et al.</i> , 1993	No

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Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Asthenopholis subfasciata</i> Blanchard [Coleoptera: Scarabaeidae]	root feeding beetle	No	Adults feed on the roots.	Smith <i>et al.</i> , 1995	No
<i>Augosoma centaurus</i> Fabricius, 1775 [Coleoptera: Scarabaeidae]	African rhinoceros beetle	Yes	The African rhinoceros beetle feeds on fruit.	Guérout, 1974b	Yes
<i>Bactrocera kirki</i> (Froggatt, 1910) [Diptera: Tephritidae]	Fijian fruit fly	No	Pineapple is not a host.	Armstrong & Vargas, 1982; Heimoana <i>et al.</i> , 1997	No
<i>Bactrocera passiflorae</i> (Froggatt) [Diptera: Tephritidae]	fruit fly	No	Pineapple is not a host.	Armstrong & Vargas, 1982; Heimoana <i>et al.</i> , 1997	No
<i>Bactrocera trilineola</i> Drew, 1989 [Diptera: Tephritidae]	fruit fly	No	Pineapple is not a host.	Armstrong & Vargas, 1982; Heimoana <i>et al.</i> , 1997	No
<i>Bactrocera xanthodes</i> (Broun, 1905) [Diptera: Tephritidae]	fruit fly	No	Pineapple is not a host.	Armstrong & Vargas, 1982; Heimoana <i>et al.</i> , 1997	No
<i>Baris</i> sp. [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on the fruit, causing gummosis.	Martinez, 1976	Yes
<i>Barybus</i> sp. [Coleoptera: Scarabaeidae]	weevil	Yes?	This weevil feeds on the fruit.	Bachli & Redmond, 1997	Yes
<i>Batrachedra mathesoni</i> Busck, 1916 [Lepidoptera: Batrachedridae]	leafminer	Yes	This species feeds on the fruit at flowering stage, causes gummosis.	Nakasone & Paull, 1998; Perez, 1957, 1959	Yes
<i>Blitopertha orientalis</i> (Waterhouse) [Coleoptera: Scarabaeidae]	Oriental beetle	Yes	Adults feed on flowers and leaves and larvae feed on the roots.	CABI/EPPO, 1997a; CIE, 1959	Yes

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Bombus</i> sp. [Hymenoptera: Apidae]	bumble bee	No	This species is a pollinator of many plant species and feeds on flowers.	Costa & Lordello, 1988 No
<i>Bradysia molokaiensis</i> (Grimshaw, 1901) [Diptera: Sciaridae]	fungus gnat	No	This species feeds on fungi growing on the plant.	Lim, 1977 No
<i>Castnia penelope</i> Schaufuss [Lepidoptera: Castniidae]	pineapple sap beetle, souring beetle, dried fruit beetle	Yes?	This species potentially feeds on fruit.	Yes
<i>Castniomera licus</i> (Drury) [Lepidoptera: Castniidae]	banana stem borer	Yes	The banana stem borer potentially feeds on fruit.	Schotman, 1989 Yes
<i>Ceratitis capitata</i> Wiedemann [Diptera: Tephritidae]	Mediterranean fruit fly	No	Pineapple is not a host.	Armstrong & Vargas, 1982; Heimoana <i>et al.</i> , 1997 No
<i>Chelacheles</i> sp. [Acarina: Cheyletidae]	mite	No	This species is a predatory mite.	Volgin, 1989 No
<i>Chionaspis minor</i> Maskell [Hemiptera: Diaspididae]	scale	Yes	This scale feeds on leaves.	Yunus & Ho, 1980 Yes
<i>Cholus spinipes</i> (Fabricius, 1781) [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on the fruit, stalk and leaves.	Marshall, 1922 Yes
<i>Cholus vaurieae</i> O'Brien, 1994 [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on the fruit, stalk and leaves.	O'Brien, 1994 Yes
<i>Cholus zonatus</i> (Swederus) [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on fruit.	Schotman, 1989 Yes
<i>Colaspis</i> sp. [Coleoptera: Chrysomelidae]	beetle	Yes?	This species potentially feeds on fruit and leaves.	Bachli & Redmond, 1997 Yes

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Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Congella valida</i> Péringuey [Coleoptera: Scarabaeidae]	root feeding beetle	No	Adults feed on the roots.	Smith <i>et al.</i> , 1995	No
<i>Cotinis mutabilis</i> (Gory & Percheron) [Coleoptera: Scarabaeidae]	beetle	Yes?	Adults feed on fruit and larvae damage roots.	Camino-Lavin <i>et al.</i> , 1996; Moron & Deloya, 1991	Yes
<i>Cryptophlebia leucotreta</i> (Meyrick) [Lepidoptera: Tortricidae]	false codling moth; bollworm	Yes	The false codling moth feeds on fruit.	Pinhey, 1975	Yes
<i>Cryptostigma robertsi</i> Williams & Watson, 1990 [Hemiptera: Coccidae]		No	This species is found in trunk cavities of <i>Terminalia</i> .	Williams & Watson, 1990	No
<i>Dasyhelea</i> sp. [Ceratopogonidae]	biting midge	Yes	This species feeds on trichomes – predispose inflorescence to <i>Penicillium funiculosum</i> infection.	Lim, 1982	Yes
<i>Dolichotetranychus vanderghooti</i> (Oudemans) [Acarina: Tenuipalpidae]	perianth mite	Yes	The perianth mite feeds on leaves.	Yunus & Ho, 1980	Yes
<i>Dysmicoccus neobrevipes</i> Beardsley, 1959 [Hemiptera: Pseudococcidae]	pineapple mealybug; annona mealybug	Yes	The pineapple mealybug feeds on fruit and leaves.	Beardsley, 1993; Ito, 1938	Yes
<i>Euethola bidentata</i> (Burmeister, 1847) [Coleoptera: Scarabaeidae]	bidentate scarab; rough-headed corn stalk borer	Yes?	The bidentate scarab potentially feeds on leaves and stem.		Yes
<i>Forcipomyia (Phytohelea) brevis</i> (Johannsen) [Diptera: Ceratopogonidae]	pineapple midge	Yes?	Implicated in spreading <i>Penicillium funiculosum</i> .	Lim, 1977	Yes
<i>Frankliniella fusca</i> (Hinds, 1902) [Thysanoptera: Thripidae]	tobacco thrips	Yes	This species potentially feeds on flowers and foliage.	Cho <i>et al.</i> , 2000; Sakimura, 1966	Yes

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Glycyphana sinuata</i> Wallace [Coleoptera: Scarabaeidae]	beetle	Yes	This beetle feeds on flowers and fruit.	Yunus & Ho, 1980	Yes
<i>Gymnonerius fuscus</i> (Wiedemann, 1824) [Diptera: Micropezidae]	stilt fly	Yes	The stilt fly feeds on fruit.	Yunus & Ho, 1980	Yes
<i>Hambletonia pseudococcina</i> Compère, 1936 [Symphyla: Scutigerellidae]	parasitic wasp	No	This species is a parasite of <i>Dysmicoccus brevipes</i> .		No
<i>Hanseniella ivorensis</i> Juberthie-Jupeau & Kehe, 1978 [Symphyla: Scutigerellidae]	symphylid	No	This species feeds on the roots.	Kehe <i>et al.</i> , 1997	No
<i>Hanseniella</i> spp. Bagnall [Symphyla: Scutigerellidae]	symphylid	No	This species feeds on the roots.	Waite, 1993	No
<i>Hanseniella unguiculata</i> (Hansen, 1901) [Symphyla: Scutigerellidae]	symphylid	No	This species feeds on the roots.	Nakasone & Paull, 1998	No
<i>Haplothrips nigricornis</i> (Bagnall) [Thysanoptera: Phlaeothripidae]	thrips	Yes	This species is implicated as a possible vector of fruitlet core rot caused by <i>Penicillium</i> and <i>Fusarium</i> .	Willers, 1992a	Yes
<i>Haptoncus luteolus</i> (Erichson, 1843) [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Yes	This beetle feeds on fruit.	Yunus & Ho, 1980	Yes
<i>Haptoncus mellitula</i> Reitter, 1873 [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Yes	This beetle feeds on fruit.	BPI, 2000	Yes

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Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Haptoncus ocularis</i> (Fairmaire, 1849) [Coleoptera: Nitidulidae]	pineapple sap beetle; souring beetle; dried fruit beetle	Yes	This beetle feeds on fruit.	Yunus & Ho, 1980	Yes
<i>Holopothrips ananasi</i> Da Costa Lima [Thysanoptera: Thripidae]	ananas thrips	Yes	The ananas thrips potentially feeds on flowers, fruit and leaves.	Costa-Lima, 1935	Yes
<i>Kilifia acuminata</i> Signoret [Hemiptera: Coccidae]	acuminate scale	Yes	The acuminate scale feeds on leaves.	Ben-Dov <i>et al.</i> , 2001; Williams & Watson, 1990	Yes
<i>Lagria villosa</i> Fabricius, 1781 [Coleoptera: Tenebrionidae]	beetle	Yes	Adults normally feed on pollen of flowers, but will also feed on similar materials, such as soybean dust. This beetle has been implicated as a carrier of <i>Fusarium moniliforme</i> to pineapple flowers.	Costa & Lordello, 1988; Edwards, 1977	Yes
<i>Lasiodites pictus</i> (Macleay 1825) [Coleoptera: Nitidulidae]	beetle	Yes	This beetle feeds on fruit.	Yunus & Ho, 1980	Yes
<i>Leptococcus metroxyli</i> Reyne, 1961 [Hemiptera: Pseudococcidae]	mealybug	Yes	This mealybug potentially feeds on fruit and leaves.		Yes
<i>Leucopholis irrorata</i> Chevrolat [Coleoptera: Scarabaeidae]	toy beetle; white grub; June beetle	Yes	Adults feed on the leaves and larvae feed on roots.	Braza, 1991	Yes
<i>Lybindus dichrous</i> [Hemiptera: Coreidae]	bug	Yes	This bug feeds on fruit and spreads <i>Fusarium</i> .	Costa & Lordello, 1988	Yes
<i>Macrophylla ciliata</i> Herbst [Coleoptera: Scarabaeidae]	root feeding beetle; white grub	No	Adults feed on roots.	Smith <i>et al.</i> , 1995	No
<i>Melanaspis bromeliae</i> (Leonardi, 1899) [Hemiptera: Diaspididae]	armoured scale	Yes	This scale feeds on fruit and leaves and produces yellow spots on leaves.	BPI, 2000; Deitz & Davidson, 1986	Yes

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Melanitis leda ismene</i> (Cramer) [Lepidoptera: Nymphalidae]	rice butterfly; green horned caterpillar	Yes	This species feeds on leaves.	APPPC, 1987; Dale, 1994	Yes
<i>Melanoloma canopilosum</i> Hendel [Diptera: Richardiidae]	pineapple fruit fly	Yes	The pineapple fruit fly feeds on fruit.	Bello-Amez <i>et al.</i> , 1997a	Yes
<i>Melanoloma viatrix</i> Hendel [Diptera: Richardiidae]	fly	Yes	This fly feeds on fruit.	Arevalo-Penaranda & Osorio-Ospina, 1995	Yes
<i>Metamasius callizona</i> (Chevrolat) [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on fruit.	Frank & Thomas, 1994	Yes
<i>Metamasius dimidiatipensis</i> (Jekel) Syn. = <i>M. dimidiatapennis</i> (sic) (NZ MAF, 1999b) [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on leaves and stems.	Salas <i>et al.</i> , 1996; Schotman, 1989	Yes
<i>Metamasius hemipterus</i> Linnaeus, 1758 [Coleoptera: Curculionidae]	weevil	Yes	This weevil feeds on leaves, stems and the whole plant.	CAB International, 2000	Yes
<i>Metamasius ritchiei</i> Marshall [Coleoptera: Curculionidae]	West Indian cane weevil	Yes	The West Indian cane weevil feeds on fruit.	Marshall, 1916; Schotman, 1989	Yes
<i>Metapocyrtus</i> sp. [Coleoptera: Curculionidae]	weevil borer; pineapple weevil	Yes	This weevil potentially feeds on leaves and stems.		Yes
<i>Mimegralla leucopeza albitarsis</i> Wiedemann [Diptera: Micropezidae]	stilt fly	Yes	The stilt fly feeds on fruit.	Yunus & Ho, 1980	Yes
<i>Monomorium minutum</i> [Hymenoptera: Formicidae]	ant	Yes			Yes

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Neodecadarchis flavistriata</i> Walsingham [Lepidoptera: Tineidae]	sugarcane bud moth caterpillar	Yes	This species is implicated in spreading <i>Penicillium funiculosum</i> .	Lim, 1977; Linford, 1939 Yes
<i>Orthezia praelonga</i> Douglas, 1891 [Hemiptera: Ortheziidae]	croton bug; horned lamellated scale	Yes	This species attacks leaves, twigs, fruits, and causes defoliation of a large number of plant species.	Martins <i>et al.</i> , 1989 Yes
<i>Oryctes rhinoceros</i> Linnaeus [Coleoptera: Scarabaeidae]	rhinoceros beetle	Yes	Adults feeds on leaves.	Bedford, 1980 Yes
<i>Oxya velox</i> (Fabricius, 1787) [Orthoptera: Acrididae]	rice field grasshopper; paddy field grasshopper	Yes	This grasshopper feeds on leaves.	BPI, 2000 Yes
<i>Parasa lepida</i> (Cramer, 1799) [Lepidoptera: Limacodidae]	blue-striped nettle grub; slug caterpillar	Yes	This species feeds on leaves.	Butani, 1975 Yes
<i>Parisoschoenus ananasi</i> Moure, 1976 [Coleoptera: Curculionidae]	weevil	Yes?	This species feeds on the base of the fruiting shoot.	Moure, 1976 Yes
<i>Pheidole fervens</i> Smith	ant	Yes?		Yes
<i>Phenacoccus madeirensis</i> Green, 1923 [Hemiptera: Pseudococcidae]	cassava mealybug	Yes	The cassava mealybug feeds on leaves and stems.	CAB International, 2000 Yes
<i>Phenacoccus solani</i> Ferris, 1918 [Hemiptera: Pseudococcidae]	solanum mealybug	Yes	The solanum mealybug potentially feeds on florets.	Yes
<i>Phyllocoptruta sakimurae</i> Kiefer, 1966 [Acarina: Eriophyidae]	blister mite	Yes	The blister mite occurs in grooves in the skin of pineapple fruit. Feeding damage causes blisters/galls on the leaves.	Amrine & Stasny, 1994; BPI, 2000; Kiefer, 1966 Yes

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Phyllophaga hogardi</i> (Blanchard, 1850) [Coleoptera: Scarabaeidae]	beetle	Yes	Adults feed on leaves and larvae feed on the roots.	Schotman, 1989	Yes
<i>Phyllophaga pleei</i> (Blanchard) [Coleoptera: Scarabaeidae]	beetle	Yes	Adults feed on leaves and larvae feed on the roots.	Schotman, 1989	Yes
<i>Polistes</i> sp. [Hymenoptera: Vespidae]	paper wasp	No	This species is implicated in spreading <i>Fusarium</i> infection.	Costa & Lordello, 1988	No
<i>Pseudaphycus dysmicocci</i> Bennett [Hemiptera: Pseudococcidae]	parasitic wasp	No	This species parasitises scale insects.		No
<i>Pseudococcus jackbeardsleyi</i> Gimpel & Miller, 1996 [Hemiptera: Pseudococcidae]	Jack Beardsley mealybug	Yes	No data available specifically for <i>P. jackbeardsleyi</i> . Mealybugs usually occur in protected areas on the host such as on the undersides of leaves, in the axils of leaves, and in cracks and crevices on the trunk. They are usually most visible when females form white waxy ovisacs surrounding the body.	CAB International, 2000	Yes
<i>Pseudococcus</i> sp. [Hemiptera: Pseudococcidae]	mealybug	Yes	This mealybug feeds on leaves.	Yunus & Ho, 1980	Yes
<i>Rhinoseius braziliensis</i> (Baker & Yunker) [Acarina: Ascidae]	mite	No	This species is a predatory mite.		No
<i>Rhizoecus americanus</i> (Hambleton, 1946) [Hemiptera: Pseudococcidae]	American ground mealybug	No	The American ground mealybug potentially feeds on the fruit and leaves.	Ben-Dov, 1994	No

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Rhynchophorus palmarum</i> (Linnaeus, 1758) [Coleoptera: Curculionidae]	South American palm weevil; American palm weevil; palm weevil	Yes	The palm weevil has only been reported as a pest in palms and on sugarcane. When reported on other plants, <i>R. palmarum</i> was feeding on ripe fruits, but was not causing economic damage. Larvae feed on the growing tissue in the crown of the palm, during which it makes a gallery, often destroying the apical growth area and causing eventual death of the palm.	Arango & Rizo, 1977; CAB International, 2000; Griffith, 1968, 1970; Restrepo <i>et al.</i> , 1982
<i>Solenopsis</i> sp. [Hymenoptera: Formicidae]	ant	Yes?	This ant species is an indirect pest – aids mealybugs. Also implicated in spreading <i>Fusarium</i> infection.	Costa & Lordello, 1988; Nakasone & Paull, 1998
<i>Stenocatantops splendens</i> (Thunberg) [Orthoptera: Acrididae]		No	This species potentially feeds on leaves.	Willemse, 1968
<i>Stephanoderes</i> sp. [Coleoptera: Scolytidae]	fruit borer	Yes	This beetle feeds on fruit.	Yunus & Ho, 1980
<i>Strategus anachoreta</i> (Burmeister) [Coleoptera: Scarabaeidae]	rhinoceros beetle	Yes	Adults feed on leaves and larvae feed on the roots.	
<i>Strategus jugurtha</i> Burmeister [Coleoptera: Scarabaeidae]	rhinoceros beetle	Yes	Adults feed on leaves and larvae feed on the roots.	
<i>Strategus julianus</i> (Burmeister) [Coleoptera: Scarabaeidae]	rhinoceros beetle	Yes	Adults feed on leaves and larvae feed on the roots.	
<i>Strymon mearnsi</i> (Godart) [Lepidoptera: Lycaenidae]	pineapple caterpillar; fruit boring caterpillar	Yes	The pineapple caterpillar feeds on fruit and leaves.	Bello-Amez <i>et al.</i> , 1997b; Nakasone & Paull, 1998; Rhoads <i>et al.</i> , 1996; Sanchez <i>et al.</i> , 1985
<i>Tetranychus</i> sp. [Acarina: Tetranychidae]	spider mite	Yes?	This mite potentially feeds on florets and may spread <i>Candida guilliermondii</i> (fruitlet core rot, FCR).	

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Thlastocoris laetus</i> Mayr, 1866 [Hemiptera: Coreidae]	bug	Yes	This bug feeds on the fruit.	Couturier <i>et al.</i> , 1993	Yes
<i>Trachyderes succinctus</i> (Linnaeus, 1758) [Coleoptera: Cerambycidae]	longhorn beetle	Yes	The longhorn beetle feeds on leaves, stem and trunk.	Schotman, 1989	Yes
<i>Trigona spinipes</i> (Fabricius, 1793) [Hymenoptera: Apidae]	stingless bee	No	The stingless bee is a pollinator of many plant species and feeds on flowers.	Costa & Lordello, 1988	No
<i>Trionymus internodii</i> (Hall, 1923)	mealybug	?Yes	This mealybug occurs on the leaf sheaths, stems, crowns and roots of various host plants.	Ben-Dov, 1994	Yes
<i>Trochalus politus</i> Moser [Coleoptera: Scarabaeidae]	root feeding beetle	No	Adults feed on the roots.	Smith <i>et al.</i> , 1995	No
<i>Valanga nigricornis</i> (Burmeister, 1838) [Orthoptera: Acrididae]	grasshopper	Yes	This grasshopper feeds on leaves.	Yunus & Ho, 1980	Yes
<i>Zonocerus elegans</i> (Thunberg, 1815) [Orthoptera: Pyrgomorphidae]	elegant grasshopper	Yes	The elegant grasshopper feeds on fruit, inflorescences, leaves, seed, stems and the whole plant.	CAB International, 2000; Nyambo, 1991	Yes
<i>Zonocerus variegatus</i> (Linnaeus, 1758) [Orthoptera: Pyrgomorphidae]	variegated grasshopper	Yes	The variegated grasshopper feeds on the fruit, inflorescence, leaves, seed, stems and the whole plant.	CAB International, 2000	Yes
Gastropoda					
<i>Cecilioides aperta</i> (Swainson, 1840) [Stylommatophora: Ferussaciidae]		Yes?			Yes

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Opeas pumilum</i> (Pfeiffer, 1822) [Gastropoda: Subulinidae]		Yes?		Yes
Nematoda				
<i>Aphelenchoides</i> sp. [Aphelenchida: Aphelenchoididae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Aphelenchus eremitus</i> Thorne, 1961 [Aphelenchida: Aphelenchoididae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Aulosphora oostenbrinki</i> (Luc, 1958) Siddiqi, 1980 [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Caloosia longicaudata</i> (Loos, 1948) [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconema ananas</i> Siddiqi [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconema octangulare</i> (Cobb, 1914) Taylor, 1936 [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconemella onoense</i> (Luc & Raski, 1981) [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Criconemella peruensis</i> (Steiner, 1920) Luc & Raski, 1981 [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconemoides complexus</i> Jairajpuri, 1963 [Tylenchida: Criconematidae]	ring nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconemoides curvatum</i> Raski, 1952 [Tylenchida: Criconematidae]	ring nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconemoides ferniae</i> Luc, 1959 [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Criconemoides helicus</i> Eroshenko & Thanh, 1981 [Tylenchida: Criconematidae]	ring nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Ditylenchus destructor</i> [Dorylaimida: Dorylaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Dorylaimus pacificus</i> [Dorylaimida: Dorylaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Dorylaimus</i> sp. [Dorylaimida: Dorylaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus africanus</i> [Tylenchida: Hoplolaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Helicotylenchus cavenessi</i> Sher, 1966 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus certus</i> Eroshenko & Nguen Vu Thanh, 1981 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots	No
<i>Helicotylenchus concavus</i> [Tylenchida: Haplaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus digonicus</i> Perry, in Perry, Darling & Thorne, 1959 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus erythrinae</i> (Zimmermann, 1904) Golden, 1956 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus notabilis</i> Eroshenko & Nguen Vu Thanh, 1981 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus pseudorobustus</i> (Steiner, 1914) Golden, 1956 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus rotundicauda</i> Sher, 1966 [Tylenchida: Haplaimidae]	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Helicotylenchus</i> spp.	spiral nematode	No	This species is not on the pathway; feeds on the roots.	No

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Hemicriconemoides cocophilus</i> (Loos) Chitwood & Birchfield [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hemicriconemoides mangiferae</i> Siddiqi, 1961 [Tylenchida: Criconematidae]	sheath nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hemicriconemoides litchi</i> Edward & Misra, 1964 [Tylenchida: Criconematidae]	sheathoid nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hemicriconemoides squamosus</i> (Cobb) [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hemicycliophora epicharis</i> Raski, 1958 [Tylenchida: Criconematidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hoplolaimus pararobustus</i> (Schuurmans Stekhoven & Teunissen, 1938) Sher, 1963 [Tylenchida: Hoplolaimidae]	lance nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Hoplolaimus seinhorsti</i> Luc, 1958 [Tylenchida: Hoplolaimidae]	lance nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Isolaimium stictachroum</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Longidorus conicaudoides</i> Khan, 1987 [Dorylaimida: Longidoridae]	needle nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Longidoroides laevicapitatus</i> Williams	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Longidoroides lobus</i> Singh & Khan, 1997 [Dorylaimida: Longidoridae]	needle nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Macrolaimus natator</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Macroposthonia magnifica</i> Eroshenko & Thanh, 1981 [Tylenchida: Criconeematidae]	ring nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Meloidogyne acrona</i> Coetzee, 1956 [Tylenchida: Meloidogynidae]	African cotton root nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Meloidogyne</i> sp. [Tylenchida: Meloidogynidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Mermis savaiiensis</i> Orton-Williams [Nematoda: Mermithidae]	Mermithic nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Mesotylus taomasinae</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Morasinema triglyphus</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Nothocriconemella mutabilis</i> (Taylor) Ebsary	nematode	No	This species is not on the pathway; feeds on the roots.	No

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Paratylenchus</i> sp. [Tylenchida: Paratylenchidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Pratylenchus pratensis</i> (de Man, 1880) Filipjev, 1936	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Pratylenchus scribneri</i> Steiner, 1943 [Tylenchida: Pratylenchidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Rotylenchulus brevis</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Rotylenchulus unisexus</i> Sher, 1965	lesion nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Rotylenchulus unum</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Scutellonema amabilis</i> Eroshenko & Thanh, 1981 [Tylenchida: Hoplolaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Scutellonema bradys</i> (Steiner & Le Hew, 1933) Andr�ssy, 1958 [Tylenchida: Hoplolaimidae]	yam nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Scutellonema vietnamiensis</i> Eroshenko & Thanh, 1981 [Tylenchida: Hoplolaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Trichodorus porosus</i> (Allen, 1957) [Triplonchida: Trichodoridae]	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Tylenchorhynchus acutus</i> Allen, 1955 [Tylenchida: Belonolaimidae]	nematode	No	This species is not on the pathway; feeds on the roots.	No

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	
<i>Tylenchorhynchus brevidens</i> Allen	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Tylenchida: Belonolamidae]				
<i>Tylenchorhynchus claytoni</i> Steiner, 1937	stunt nematode; tobacco stunt nematode	No	This species is not on the pathway; feeds on the roots.	No
[Tylenchida: Belonolamidae]				
<i>Tylenchorhynchus nudus</i> Allen	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Tylenchida: Belonolamidae]				
<i>Tylenchorhynchus parvus</i>	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Tylenchida: Belonolamidae]				
<i>Tylenchorhynchus</i> spp.	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Tylenchida: Belonolamidae]				
<i>Tylenchus filiformis</i> Butschli, 1873	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Tylenchus</i> spp.	nematode	No	This species is not on the pathway; feeds on the roots.	No
<i>Xiphinema chambersi</i> Thorne, 1939	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Dorylaimida: Longidoridae]				
<i>Xiphinema ensiculiferum</i> Cobb, 1893	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Dorylaimida: Longidoridae]				
<i>Xiphinema ifacolum</i> Luc, 1961	dagger nematode	No	This species is not on the pathway; feeds on the roots.	No
[Dorylaimida: Longidoridae]				
<i>Xiphinema insigne</i> Loos	nematode	No	This species is not on the pathway; feeds on the roots.	No
[Dorylaimida: Longidoridae]				

Pest	Common name	Pathway association		Consider further?	
		On fruit with crowns	Comment	Reference	
<i>Xiphinema louisi</i> Heyns, 1979 [Dorylaimida: Longidoridae]	nematode	No	This species is not on the pathway; feeds on the roots.	No	
<i>Xiphinema</i> spp. [Dorylaimida: Longidoridae]	nematode	No	This species is not on the pathway; feeds on the roots.	No	
Fungi					
<i>Anellolacinia dinemasporioides</i> Sutton [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Frolich <i>et al.</i> , 1993	Yes
<i>Antennularia</i> sp. [Dothideales: Venturiaceae]		Yes	This fungus occurs on leaves.	Singh, 1980	Yes
<i>Brachysporium ananassae</i> Sawada [Mitosporic fungi]		?	Reported as being associated with pineapple.		Yes
<i>Brachysporium</i> sp. [Mitosporic fungi]	leaf spot	Yes	This fungus occurs on leaves.	Giatgong, 1980	Yes
<i>Calothyriella ananassae</i> Viegas [Dothidiales: Microthyriaceae]		Yes	This fungus occurs on leaves.	Systematic Botany & Mycology Laboratory website, 2001	Yes
<i>Candida guilliermondii</i> (Castellani) Langeron & Guerra [Mitosporic fungi]	round yeast, FCR	Yes	This fungus is associated with fruit.	Rohrbach & Schmitt, 1994	Yes
<i>Capnodium</i> sp. [Dothideales: Capnodiaceae]	sooty mould	Yes	This fungus occurs on leaves.	Singh, 1980	Yes

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Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Cercospora</i> sp. [Mitosporic fungi]	leaf spot	Yes	This fungus occurs on leaves.	Chupp, 1953	Yes
<i>Clonostachys</i> sp. [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Singh, 1980	Yes
<i>Colletotrichum ananas</i> Garud [Mitosporic fungi]	spot anthracnose	Yes	This fungus occurs on leaves.	Garud, 1968	Yes
<i>Colletotrichum</i> sp.	leaf anthracnose	Yes	This fungus occurs on leaves.	Garud, 1968	Yes
<i>Coniella fragariae</i> (Oudem.) Sutton		Yes	Reported as being associated with pineapple.	Shoemaker & Kokko, 1975	Yes
<i>Curvularia</i> sp. [Mitosporic fungi]		?	This fungus occurs on leaves.	Alvarez, 1976; Firman, 1972; Urtiaga, 1986	Yes
<i>Cyclodorus comosi</i> [Mitosporic fungi]		?	This fungus occurs on leaves.	Anon., 1979b; Sawada, 1959	Yes
<i>Dictyoarthrinium sacchari</i> (J.A. Stevenson) Damon [Mitosporic fungi]	Saprophyte	No	Secondary invader or saprophyte. This fungus occurs only on mature leaves, not crown leaves.	Ellis, 1971	No
<i>Dictyothyria ananasicola</i> J.N. Kapoor & R.L. Munjal [Dothideales: Micropeltidaceae]		Yes	This fungus occurs on leaves.	Sarbhoy <i>et al.</i> , 1971	Yes
<i>Dinemasporium microsporium</i> Sacc. [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Pavgi & Gupta, 1967	Yes
<i>Echidnodes bromeliacearum</i> (Rehm) Theiss. & Syd. [Dothideales: Asterinaceae]	black mildew	Yes	Reported as being associated with pineapple.	Reinking, 1919	Yes

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Fusarium guttiforme</i> Nirenberg & O'Donnell [Mitosporic fungi]		?	Isolated from rotting fruit.	Nirenberg & O'Donnell, 1998 Yes
<i>Fusarium subglutinans</i> (Wollenweb. & Reinking) P.E. Nelson, T.A. Tousson & Marasas [Mitosporic fungi]	pineapple eye rot; fruitlet core rot; fusariosis (Camargo & Camargo, 1974, Ventura <i>et al.</i> , 1981); fusariosis (Rohrbach & Apt, 2001); gummosis (Giacomelli <i>et al.</i> , 1969)	Yes		Raabe <i>et al.</i> , 1981 Yes
<i>Gliomastix luzulae</i> (Fuckel) Mason ex Hughes [Mitosporic fungi]		No	Saprophytic on leaves.	Ellis, 1971 No
<i>Hymenula affinis</i> (Fautrey & Lambotte) Wollenweb. [Mitosporic fungi]		No	An obscure species in a genus of doubtful validity.	Systematic Botany & Mycology Laboratory website, 2001 No
<i>Leptothyrium indicum</i> Pavgi & P. Gupta [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Pavgi & Gupta, 1967 Yes
<i>Marasmiellus scandens</i> (Mass.) Dennis & Reid [Agaricales: Tricholomataceae]	white thread blight	Yes	Reported as being associated with pineapple.	Singh, 1980 Yes
<i>Marasmius palmivorus</i> Sharples [Agaricales: Tricholomataceae]	chlorosis, fruitlet brown rot	Yes	Reported as being associated with pineapple.	Singh, 1980 Yes
<i>Mariannaea elegans</i> (Corda) R.A. Samson [Mitosporic fungi]	basal leaf rot	No	This fungus occurs on rotting tissue and organic debris.	Systematic Botany & Mycology Laboratory website, 2001 No

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Pest	Common name	Pathway association		Consider further?
	On fruit with crowns	Comment	Reference	
<i>Microdiplodia ananasae</i> S. Singh & G.P. Agarwal	Yes	This fungus occurs on leaves.	Mathur, 1979	Yes
<i>Myiocopron pandani</i> Hohn.	Yes	This fungus occurs on leaves.	Pavgi & Gupta, 1967	Yes
<i>Nectria ananatis</i> Seaver & Chardon	Yes	This fungus occurs on leaves.	Stevenson, 1975	Yes
<i>Nigrospora</i> sp.	?			Yes
<i>Penicillium claviforme</i> Bainier	Yes	This fungus occurs on leaves.	Adisa, 1983; Adisa & Fajola, 1982	Yes
[Mitosporic fungi]				
<i>Penicillium dangeardii</i> J. Pitt	Yes?	Reported as being associated with pineapple.		Yes
[Mitosporic fungi]				
<i>Penicillium manginii</i> Duche & R. Heim.	Yes?	Reported as being associated with pineapple.	Moreau, 1948	Yes
[Mitosporic fungi]				
<i>Penicillium pinophilum</i> Hedgc.	Yes?	Reported as associated with pineapple.	Raabe <i>et al.</i> , 1981	Yes
[Mitosporic fungi]				
<i>Penicillium purpurogenum</i> O. Stoll	Yes?	Reported as associated with pineapple.		Yes
[Mitosporic fungi]				
<i>Periconia byssoides</i> Persoon ex Merat	Yes?	This fungus is a saprophyte.	Ellis, 1971	No
[Mitosporic fungi]				
<i>Periconia effusa</i> (Berk & Broome) E. Mason & M.B. Ellis	No	Reported as saprophytic on pineapple.	Hughes, 1948b	No
[[Mitosporic fungi]]				

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Periconia minutissima</i> Corda [Mitosporic fungi]		No	Saprophytic on plant debris.	Mason & Ellis, 1953	No
<i>Pestalotia ananas</i> Sawada [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Anon., 1979b; Nag-raj, 1993; Sawada, 1959	Yes
<i>Pestalotia microspora</i> Ellis & Everh. [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Guba, 1961; Rao & Mhasker, 1973	Yes
<i>Pestalotia sphaerelloides</i> Ellis & Langl. (nom. nud.) [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Arnold, 1986	Yes
<i>Pestalotiopsis adusta</i> (Ellis & Everh.) Steyaert [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Mathur, 1979	Yes
<i>Phoma comosa</i> Pavgi & Gupta [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Pavgi & Gupta, 1967	Yes
<i>Phomopsis</i> sp. [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Systematic Botany & Mycology Laboratory website, 2001	Yes
<i>Phyllosticta ananassae</i> Sawada [Mitosporic fungi]		Yes	This fungus occurs on leaves.	Anon., 1979b; Sawada, 1959	Yes
<i>Phyllosticta</i> sp.	leaf spot	Yes	This fungus occurs on leaves.	Alfieri <i>et al.</i> , 1984	Yes
<i>Pilobolus crystallinus</i> (A. Wigg.) Tode: Fr. [Mucorales: Pilobolaceae]		Yes	Reported as being associated with pineapple.	Shaw, 1984	Yes
<i>Pithomyces maydis</i> (Sacc.) M.B. Ellis [Mitosporic fungi]		Yes	Reported as being associated with pineapple.	Ellis, 1971	No

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Pest	Common name	Pathway association		Consider further?
	On fruit with crowns	Comment	Reference	
<i>Pithomyces sacchari</i> (Speg.) M.B. Ellis [Mitosporic fungi]	Yes	This fungus occurs on leaves.	Ellis, 1971	Yes
<i>Prillieuxina stuhlmannii</i> (Henn.) Arx (Dothideales: Asterinaceae)	leaf spot Yes	This fungus occurs on leaves.	Singh, 1980; Stevenson, 1975	Yes
<i>Pythium hydnosporum</i> (Mont.) J. Schrot. [Pythiales: Pythiaceae]	root rot No	This fungus is associated with roots.	Plaats-Niterink, 1981	No
<i>Pythium indigoferae</i> E.J. Butler [Pythiales: Pythiaceae]	root rot No	This fungus is associated with roots.	Raabe <i>et al.</i> , 1981	No
<i>Pythium irregulare</i> Buisman var. <i>hawaiiense</i> Sideris [Pythiales: Pythiaceae]	root rot No	This fungus is associated with roots.	Raabe <i>et al.</i> , 1981	No
<i>Pythium megalacanthum</i> de Bary [Pythiales: Pythiaceae]	root rot No	This fungus is associated with roots.		No
<i>Pythium</i> sp. [Pythiales: Pythiaceae]	root rot No	This fungus is associated with roots.	Lim, 1985	No
<i>Rhizidiocystis ananasi</i> Sideris [Chytridiales: Incertae sedis]	No	This fungus attacks root hairs of pineapple.	Karling, 1977	No
<i>Rhizopus</i> sp.	Yes	This fungus is associated with rotting fruit.	Raabe <i>et al.</i> , 1981	Yes
<i>Septobasidium westonii</i> Couch (nom. illeg.)	Yes	This fungus occurs on leaves.	Couch, 1938	Yes

Pest	Common name	Pathway association			Consider further?
		On fruit with crowns	Comment	Reference	
<i>Spegazzinia sundara</i> Subramanian		No	Saprophytic on dead leaves.	Wani & Thirumalachar, 1970	No
[Mitosporic fungi]					
<i>Sporodum atropurpureum</i> Berk. & Curtis		Yes		Hughes, 1953	Yes
[Mitosporic fungi]					
<i>Stachybotrys parvispora</i> S. J. Hughes		No	Saprophytic on dead leaves.	Hughes, 1952	No
[Mitosporic fungi]					
<i>Stachylidium bicolor</i> Link ex Fr.		No	Saprophytic on dead tissue.	Ellis, 1971	No
[Mitosporic fungi]					
<i>Steirochaete ananassae</i> Sacc.		?			Yes
[Mitosporic fungi]					
<i>Stilbella annulata</i> (Berk. & M.A. Curtis) Siefert		No	Saprophytic on leaves, stems and organic debris.	Systematic Botany & Mycology Laboratory website, 2001	No
[Mitosporic fungi]					
<i>Stomiopeltis</i> sp.	sooty mould	Yes	This fungus occurs on leaves.	Singh, 1980	Yes
[Dothideales: Micropeltidaceae]					
<i>Trichobotrys effusa</i> (Berk. & Broome) Petch		?			Yes
[Mitosporic fungi]					
<i>Trichoderma</i> sp.	secondary mold	Yes	Saprophyte of organic debris. Used as a biological control agent to inhibit pathogenic microbes in soil.	Raabe <i>et al.</i> , 1981	Yes
[Mitosporic fungi]					
<i>Zygosporium oscheoides</i> Mont.		No	Saprophytic on plant debris.	Hughes, 1952	No
[Mitosporic fungi]					

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Pest	Common name	Pathway association	Consider further?
On fruit with crowns		Comment	Reference
Bacteria			
<i>Acetobacter oxydans</i> [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	Yes	Yes
<i>Acetobacter</i> sp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	marbling	Yes	Yes
<i>Acetomonas</i> spp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	Yes	Yes
<i>Enterobacter</i> sp. [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	Yes	Yes
<i>Erwinia chrysanthemi</i> pv. <i>paradisiaca</i> (Victoria & Barros 1969) Dickey & Victoria 1980 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	rhizome rot; tipover; fruit soft rot of banana	Yes?	No
<i>Erwinia</i> sp. [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	Yes	Yes
<i>Gluconobacter</i> sp. [Rhodospirilli: Rhodospirillales: Acetobacteraceae]	pink disease	Yes	Yes

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Pantoea citrea</i> Kageyama et al., 1996 [Zymobacteria: Enterobacteriales: Enterobacteriaceae]	pink disease	Yes		Yes
Viruses				
Pineapple wilt-associated (?) closterovirus	PMWaV	Yes		Yes
Pineapple chlorotic leaf streak (?) nucleorhabdovirus	PCLSV	Yes		Yes
Weeds				
<i>Acanthospermum hispidum</i> DC. [Asteraceae]	bristly star-bur	Yes?	Species prohibited until assessed.	Yes
<i>Boerhavia erecta</i> L. [Nyctaginaceae]	erect spiderling	Yes?	This species is a prohibited weed.	Yes
<i>Borreria alata</i> (Aubl.) DC. [Rubiaceae]		Yes?	Unrestricted species.	No
<i>Borreria erecta</i> [Rubiaceae]		Yes?	Unrestricted species.	No
<i>Borreria laevis</i> (Lam.) Griseb. [Rubiaceae]	woodland false buttonweed	Yes?	This species is a prohibited weed.	Yes
<i>Borreria ocymoides</i> (Burm. f.) DC. [Rubiaceae]		Yes?	This species is a prohibited weed.	Yes
<i>Cassia tora</i> L. [Caesalpiniaceae]		Yes?	This species is a prohibited weed.	Yes

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Cenchrus echinatus</i> L. [Poaceae]	hedgehog grass; southern sandbur	Yes?	This species is a prohibited weed.	Yes
<i>Centrosema pubescens</i> (DC.) Benth. [Fabaceae]	butterfly pea	Yes?	Restricted seed.	Yes
<i>Chromolaena odorata</i> (L.) R.M. King & H. Robbins [Asteraceae]	archangel; bitter-bush	Yes?	This species is a prohibited weed.	Yes
<i>Cleome rutidosperma</i> DC. [Capparidaceae]		Yes?	This species is a prohibited weed.	Yes
<i>Commelina benghalensis</i> L. [Commelinaceae]	Benghal dayflower; tropical spiderwort	Yes?	This species is a prohibited weed.	Yes
<i>Commelina diffusa</i> Burm. f. [Commelinaceae]	creeping dayflower	Yes?	This species is a prohibited weed.	Yes
<i>Cyperus brevifolius</i> (Rottb.) Hassk. [Cyperaceae]	green kyllinga	Yes?	Species prohibited until assessed.	Yes
<i>Cyperus compressus</i> L. [Cyperaceae]	annual sedge	Yes?	Species prohibited until assessed.	Yes
<i>Cyperus rotundus</i> L. [Cyperaceae]	coco sedge; nut sedge	Yes?	Species prohibited until assessed.	Yes
<i>Datura stramonium</i> L. [Solanaceae]	Jamestown weed	Yes?	This species is a prohibited weed.	Yes
<i>Digitaria abyssinica</i> (Hochst. ex A. Rick.) Stapf. [Poaceae]	Abyssinian finger grass; African couch grass	Yes?	Restricted seed.	Yes

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Digitaria ciliaris</i> (Retz.) Koeler [Poaceae]	southern crabgrass; tropical finger grass	Yes?	Restricted seed.	Yes
<i>Digitaria sanguinalis</i> (L.) Scop. [Poaceae]	hairy crabgrass	Yes?	Restricted seed.	Yes
<i>Digitaria setigera</i> Roth [Poaceae]		Yes?	Restricted seed.	Yes
<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult. [Poaceae]	feather tumble grass	Yes?	Species prohibited until assessed.	Yes
<i>Hyptis brevipes</i> Poit. [Lamiaceae]		Yes?	This species is a prohibited weed.	Yes
<i>Lantana camara</i> L. [Verbenaceae]	lantana; shrub verbena	Yes?	This species is a prohibited weed.	Yes
<i>Leptochloa chinensis</i> (L.) Nees [Poaceae]	Asian sprangletop; Chinese sprangletop	Yes?	This species is a prohibited weed.	Yes
<i>Ludwigia octovalvis</i> (Jacq.) P.H. Raven [Onagraceae]	primrose willow	Yes?	Species prohibited until assessed.	Yes
<i>Macroptilium atropurpureum</i> (DC.) Urb. [Fabaceae]	purple bean	Yes?	Restricted seed.	Yes
<i>Mimosa invisa</i> Mart. ex Colla [Fabaceae]	giant sensitive plant	Yes?	This species is a prohibited weed.	Yes

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Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Oxalis corniculata</i> L. [Oxalidaceae]	creeping yellow woodsorrel	Yes?	This species is a prohibited weed.	Yes
<i>Panicum maximum</i> Jacq. [Poaceae]	guinea grass	Yes?	Restricted seed.	Yes
<i>Panicum purpurascens</i> Raddi [Poaceae]	Pará grass	Yes?	Restricted seed.	Yes
<i>Panicum repens</i> L. [Poaceae]	torpedo grass	Yes?	Restricted seed.	Yes
<i>Pennisetum polystachyon</i> (L.) Schult. [Poaceae]	mission grass	Yes?	Restricted seed.	Yes
<i>Pennisetum purpureum</i> Schumach. [Poaceae]	elephant grass	Yes?	Restricted seed.	Yes
<i>Saccharum spontaneum</i> L. [Poaceae]	wild sugarcane	Yes?	This species is a prohibited weed.	Yes
<i>Setaria parviflora</i> (Poir.) Kerguelen [Poaceae]	knotroot foxtail	Yes?	Restricted seed.	Yes
<i>Setaria pumila</i> (Poir.) Roem. & Schult. [Poaceae]	yellow foxtail	Yes?	Restricted seed.	Yes
<i>Setaria verticillata</i> (L.) P. Beauvois [Poaceae]	bristly foxtail	Yes?	Restricted seed.	Yes

Pest	Common name	Pathway association		Consider further?
		On fruit with crowns	Comment	Reference
<i>Solanum nigrum</i> L. [Solanaceae]	black nightshade	Yes?	Restricted seed.	Yes
<i>Solanum torvum</i> Swartz [Solanaceae]	turkey berry	Yes?	Restricted seed.	Yes
<i>Sorghum halepense</i> (L.) Pers. [Poaceae]	Egyptian millet; Johnson grass	Yes?	Restricted seed.	Yes
<i>Trichachne insularis</i> (L.) Nees. [Poaceae]	sour grass	Yes?	Species prohibited until assessed.	Yes

APPENDIX 4: PESTS THAT WILL REQUIRE FURTHER CONSIDERATION IN THE IRA

Arthropoda

Adoretus sinicus

Anomocaulus fulvovestitus

Araucomyrmex sp.

Augosoma centaurus

Baris sp.

Barybus sp.

Batrachedra mathesoni

Blitopertha orientalis

Castnia penelope

Castniomera licus

Chionaspis minor

Cholus spinipes

Cholus vaurieae

Cholus zonatus

Colaspis sp.

Cotinus mutabilis

Cryptophlebia leucotreta

Dasyhelea sp.

Dolichotetranychus vanderghoti

Dysmicoccus neobrevipes

Euetheola bidentata

Forcipomyia brevis

Frankliniella fusca

Glycyphana sinuata

Gymnonerius fuscus

Haplothrips nigricornis

Haptoncus luteolus

Haptoncus mellitula

Haptoncus ocularis

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Holopothrips ananasi

Kilifia acuminata

Lagria villosa

Lasiodites pictus

Leptococcus metroxyl

Leucopholis irrorata

Lybindus dichrous

Melanaspis bromeliae

Melanitis leda ismene

Melanoloma canopilosum

Melanoloma viatrix

Metamasius callizona

Metamasius dimidiatipensis

Metamasius hemipterus

Metamasius ritchiei

Metapocyrtus sp.

Mimegralla leucopeza

Monomorium minutum

Neodecadarchis flavistriata

Orthezia praelonga

Oryctes rhinoceros

Oxya velox

Parasa lepida

Parisochoenus ananasi

Pheidole fervens

Phenacoccus madeirensis

Phenacoccus solani

Phyllocoptruta sakimurae

Phyllophaga hogardi

Phyllophaga pleei

Pseudococcus jackbeardsleyi

Pseudococcus sp.

Rhynchophorus palmarum

Solenopsis sp.

Stephanoderes sp.
Strategus anachoreta
Strategus jugurtha
Strategus julianus
Strymon megarus
Tetranychus sp.
Thlastocoris laetus
Trionymus internodii
Trachyderes succinctus
Valanga nigricornis
Zonocerus elegans
Zonocerus variegatus

Gastropoda

Cecilioides aperta
Opeas pumilum

Fungi

Annelolacinia dinemasporioides
Antennularia sp.
Brachysporium ananassae
Brachysporium sp.
Calothyriella ananassae
Candida guilliermondii
Capnodium sp.
Cercospora sp.
Clonostachys sp.
Colletotrichum ananas
Colletotrichum sp.
Coniella fragariae
Curvularia sp.
Cyclodorus comosi
Dictyothyria ananasicola
Dinemasporium microsporium

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Echidnodes bromeliacearum

Fusarium guttiforme

Fusarium subglutinans

Leptothyrium indicum

Marasmiellus scandens

Marasmius palmivorus

Microdiplodia ananasae

Myiocopron pandani

Nectria ananatis

Nigrospora sp.

Penicillium claviforme

Penicillium dangeardii

Penicillium manginii

Penicillium pinophilum

Penicillium purpurogenum

Pestalotia ananas

Pestalotia microspora

Pestalotia sphaerelloides

Pestalotiopsis adusta

Phoma comosa

Phomopsis sp.

Phyllosticta ananassae

Phyllosticta sp.

Pilobolus crystallinus

Pithomyces sacchari

Prillieuxina stuhlmannii

Rhizopus sp.

Septobasidium westonii

Sporodum atropurpureum

Steirochaete ananassae

Stomiopeltis sp.

Trichobotrys effusa

Trichoderma sp.

Bacteria

Acetobacter oxydans

Acetobacter sp.

Acetomonas spp.

Enterobacter sp.

Erwinia sp.

Gluconobacter sp.

Pantoea citrea

Viruses

Pineapple chlorotic leafstreak (?)
nucleorhabdovirus

Pineapple wilt-associated (?)
closterovirus

Weeds

Acanthospermum hispidum

Boerhavia erecta

Borreria laevis

Borreria ocymoides

Cassia tora

Cenchrus echinatus

Centrosema pubescens

Chromolaena odorata

Cleome rutidosperma

Commelina benghalensis

Commelina diffusa

Cyperus brevifolius

Cyperus compressus

Cyperus rotundus

Datura stramonium

Digitaria abyssinica

Digitaria ciliaris

Digitaria sanguinalis

Digitaria setigera

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Eragrostis tenella

Hyptis brevipes

Lantana camara

Leptochloa chinensis

Ludwigia octovalvis

Macroptilium atropurpureum

Mimosa invisa

Oxalis corniculata

Panicum maximum

Panicum purpurascens

Panicum repens

Pennisetum polystachyon

Pennisetum purpureum

Saccharum spontaneum

Setaria parviflora

Setaria pumila

Setaria verticillata

Solanum nigrum

Solanum torvum

Sorghum halepense

Trichachne insularis

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