

NURSERY PAPERS

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The Nursery Production Plant Health & Biosecurity Project covers a number of disciplines including research, industry development and extension in partnership with Agri-Science Queensland. The project is aimed at enhancing and strengthening the capacity of industry to plan, manage and respond to plant pest issues across Australia at both a farm and strategic national level. In this Nursery Paper, NGIQ Industry Development Manager John McDonald, provides a summary of this significant industry levy funded project.



The Nursery Production Plant Health & Biosecurity Project, running from 2011 to 2015, is a funding partnership between the Australian nursery industry, Horticulture Australia Limited (HAL) and the Queensland Department of Employment, Economic Development & Innovation (DEEDI). **The Nursery Production Plant Health & Biosecurity Project** will provide support to the Australian nursery industry in the areas of national biosecurity, on-farm technical support, identification and management of plant pests and diseases through:

- professional pest and disease diagnostics;
- Emergency Plant Pest Response Deed (EPPRD) technical support;
- skill enhancement and capacity building of industry; and
- development of resources for on and off-farm biosecurity management.



In particular, the project will support a national plant pest and disease diagnostic service that will include the capacity to monitor the occurrence of principal plant pests and pathogens in Australian production nurseries and post-entry quarantine facilities. The project will provide technical support to the industry in the area of biosecurity, assist in the development of plant pest and disease identification packages and evaluate methods for the management of major pests and diseases.

Plant health issues (pests & diseases) currently have a major impact on nursery production across Australia, not only causing direct losses of nursery stock but also restricting access to domestic (interstate) and international markets. Furthermore there is a growing threat of introductions of exotic plant pests into Australia due to increased travel, market exposure, tourism and the potential impacts of Climate Change/Variability.

The Australian nursery industry currently has limited resources to address plant health risks, threats, on-farm biosecurity and national biosecurity obligations. The pest and disease diagnostic service provided by this project through Agri-Science Queensland, will see a dedicated plant pathology/entomology support service available to the nursery industry, plus recognised experts within the section to build industry capacity.

The Nursery Production Plant Health & Biosecurity Project will achieve the desired outcomes by delivering across five clearly identified disciplines including:

- (1) Plant pest and disease diagnostics
- (2) Monitoring plant pests and diseases in production nurseries and biosecurity support
- (3) Pest and disease identification packages for production nurseries
- (4) Management practices for major pests and diseases of nursery crops
- (5) Pest and disease communication

Each of the above project disciplines has detailed criteria constructed around them based on industry identified gaps and

are aligned to previously funded research outcomes plus the Nursery Industry Strategic Plan 2010 - 2015. The expanded project disciplines are explained below:

1) Plant pest and disease diagnostics

The project team will conduct pest and disease diagnostic work for the Australian nursery industry through Agri-Science Queensland. Individual NIASA Accredited businesses from around Australia will have discounted access for three diagnostic samples per business per year (i.e. there will be three diagnostic samples provided per NIASA nursery per year at a reduced rate). Furthermore the project will provide free of charge Phytophthora testing for one soil sample per NIASA Accredited business per year.

The project will also provide production nurseries in the Australian nursery industry, irrespective of status, membership or affiliation, bulk user rates for diagnostic samples throughout the project life. This will be available to all production nurseries anywhere in Australia.



2) Monitoring of plant pests and diseases in production nurseries and biosecurity support

The project team will interact with NGIA industry development officers (IDO's) across Australia to monitor the occurrence of major plant pathogens in production nurseries. In south-east Queensland and northern NSW the team will conduct surveys at co-operating production nurseries to identify the major causes of plant diseases and where possible record hygiene and disease management practices. Samples will also be received from interstate production nurseries via the Australian nursery industry IDO network.

The project team will support the nursery industry as technical experts under the EPPRD. Team members will provide assistance in the design and validation of on-farm surveillance techniques which align to the NGIA's on-farm biosecurity management system (BioSecure HACCP) and production nursery accreditation scheme (NIASA Best Management Practice Guidelines).

The project team will provide input into the Nursery and Garden Industry Biosecurity Plan by identifying potential biosecurity

threats to the industry, assessing risk levels associated with these pests/diseases and developing specific contingency and incursion response plans for key emergency plant pests.

The project team will provide technical support to NGIA and the biosecurity portfolio manager in areas relevant to the EPPRD such as pest categorisation surveys and meetings, incursion responses under the Consultative Committee on Emergency Plant Pests (CCEPP) and assessing Emergency Response Plans. The team will also work with industry in developing the Nursery Industry Biosecurity Policy Position and will be involved in reviewing the Nursery Industry Biosecurity Plan.



3) Pest and Disease identification packages for production nurseries

A series of high quality images of ornamental plant pests and diseases for use in ten electronic based information packages annually will be collated by the project team. Currently the industry has a portable electronic identification tool available for pest identification "Insects, Beneficial's, Diseases, Disorders and Weeds of Nursery Production" (PDA Compatible – NY07022). The program has a comprehensive insect library however it lacks a comprehensive package for pathogen identification in nursery crops. Project staff will work with growers and industry development officers to construct such a package for inclusion in the electronic resource which can be used by growers as a self-diagnostic tool.

A database of host/pathogen relationships for a range of nursery crops will also be constructed. This database will be completed by the end of the project due to the large amount of work required to deliver on this criteria.





4) Management practices for major pests and diseases of nursery crops

Assist in the development of pest management plans (insects and diseases) that can be added to the Nursery Production Farm Management System program (BioSecure HACCP). These plans will be used by certified businesses to meet market access requirements.

A desktop study of new plant protection products with efficacy against a range of insects and diseases of importance to the nursery industry, including both chemical and biological products, will be undertaken. Where promising products are identified, field assessments will be conducted. In the case of insecticides and fungicides with demonstrated efficacy against a target pest or pathogen, data will be used to support Minor Use Permit applications where appropriate.



5) Pest and disease communication

The project will offer a range of communication methodologies to inform the nursery industry of various aspects and outcomes of and from the project. Many of the activities will link to strengthening the programs that form the Nursery Production Farm Management System (NIASA, EcoHort & BioSecure HACCP) through updating technical information within guidelines and advancing nursery cropping through science based solutions. Access to the project outputs by growers will be available to all industry levy payers via state Industry Development Officers, state/territory organised workshops and general industry communication channels including state and national websites, newsletters and Nursery Papers.

Communication outputs include:

- Short one page information factsheets (6 per year) included in NGI publications such as national and state newsletters in either hard or soft copy
- An annual Nursery Paper on a relevant topic such as a specific pest management strategy or a pre-emptive warning on key threat pest species
- Attend national conferences and deliver technical presentations on various aspects and outputs of the project
- Provide one project workshop per state/territory per year organised by the relevant NGI
- Undertake on-farm sample collecting when appropriate.

In meeting the agreed obligations the project will deliver the following in 2011/2012:

- 1) Support a national service for the diagnosis of plant pests and diseases in production nurseries:
 - a) Three 50% discounted diagnostic samples per NIASA business per annum
 - b) One complementary Phytophthora diagnostic sample per NIASA business per annum
 - c) Whole of industry "bulk user" 30% discount for nursery diagnostic services

2011/2012 fee structure (GST inclusive)

Diagnostic Sample	Standard Fee	50% Discount fee	30% discount fee
Direct Microscope	\$54.95	\$27.48 (NIASA)	\$38.47
Complex test (commercial) culturing, baiting, moist incubation	\$96.10	\$48.02 (NIASA)	\$67.27

- 2) One pest and disease management one day workshop per state/territory/annum. Workshop to address insects and diseases in a one day format with topics delivered as classroom lectures and/or field demonstrations.



- 3) 6 fact sheets on endemic/exotic plant pests

- Two spotted mite
- Silverleaf white fly (two biotypes)
- Aphids (Green peach aphid)
- Thrips (WFT)
- Sudden oak death (*Phytophthora ramorum*)
- Fire blight (*Erwinia amylovora*)

A Nursery Paper on *Cylindrocladium* sp (root & foliar rot)



4) Add information to the industry host/pathogen database. NGIQ database plus DEEDI Diagnostics database considered and an amalgamation plan developed – data provided to build a database with images, etc of key pathogen/host data.

5) Identify 6 new pesticide registrations or uses of actives in horticulture that can be added to the nursery industry Minor Use Program. Actives must be available in Australia. Conduct a desk top audit of microbial biological control agents across Australia and internationally.

6) Progress molecular level diagnostics and on-farm implementation by initially discussing and establishing an evaluation program for Pocket Diagnostic Test kits.

7) Add 10 pests or diseases to the industry electronic identification tool “Insects, Beneficial’s, Diseases, Disorders and Weeds of Nursery Production” per annum.

The first year (11/12) list is as follows:

Alternaria	Colletotrichum	Fusarium	Phytophthora	Botrytis
Pythium	Cylindrocladium	Rhizoctonia	Powdery Mildew	Chalara

8) Develop one integrated pest management strategy for fungus gnats incorporating insecticide, biological, cultural, etc practices for nursery production.

9) Assist and support industry during pest categorisation processes under the EPPRD as required by completing pest specific “EPPRD

Pest Categorisation Questionnaire’s” as advised by NGIA.

Assist industry during an emergency plant pest incursion in the areas of:

- i) Pest biology and host range
 - ii) Pest impacts and international responses
 - iii) Assist in the development of appropriate management protocols and plans
 - iv) Provide technical expertise during market access negotiations
- 10) Develop Citrus Greening (Huanglongbing) emergency plant pest contingency plan for nursery production.

Further information on this project is available at www.ngia.com.au

