Final Report
HAL project: NY 04030
Completion date: 30 April 2008

Adoption of HACCP by Nursery and Garden Industry (NIASA)

Robert Prince
National Environmental Policy Manager
Nursery & Garden Industry Australia

Final Report

HAL project: NY 04030

Completion date: 30 April 2008

Robert Prince

National Environmental Policy Manager

Nursery and Garden Industry Australia

PO Box 907

EPPING NSW 1710

Ph 02 98765200

Fax 02 9876 6360

Contents

SUMMARY

The aim of the project was to provide the mechanism for industry to adopt the principles of the risk management program as represented by HACCP in a manner that was relevant to the Nursery & Garden Industry and Biosecurity concerns.

The project commenced in 2004-05 year to be aligned with the development of the industry Biosecurity plan. The initial concept was for this program to be integrated into the existing NIASA quality control program. This was not possible so a standalone module was developed that is linked via the audit and certification process to the NIASA program.

The Guidelines developed and associated material will be utilised by the industry network of Development Officers to get businesses to adopt the program.

- Guidelines have been developed to enable businesses to implement process

- Support material provided to Industry Development Network to assist in implementing the program

- Program presented to attendees at the NGI National Conference in March 2008

- Auditing software developed to run on PDA's

- Development of Industry reporting format to measure industry adoption of Environmental programs.

INTRODUCTION

Recent years have seen the emergence of a number of key biosecurity issues with the potential to cause significant impacts on the long-term health and sustainability of the nursery and garden industry. Issues such as tighter controls on plant movement and the need for accurate monitoring for pest incursions to prove a property or crop is free from pests or diseases.

Growers have been faced with increased costs for treatment of plants for inter state markets and it is expected that should there be an incursion of an exotic pest or disease businesses who can not prove that they undertake appropriate monitoring or recored keeping may be subjected to bans on plant movement from their properties.

Effective management of biosecurity issues at the business level, and the need to provide strong and relevant environmental leadership at the industry level is recognised within the strategic plan as vital to the industry's long-term sustainability.

METHOD AND ACTIVITIES

The Project was initially managed by the Industry Development Manager and more recently by National Environmental Policy Manager working with the John MacDonald, Industry Development Manager with Nursery & Garden Industry Queensland. John was driving the process in conjunction with Industy IDO's and Dpi staff in Queensland.

IMPLICATIONS FOR INDUSTRY

The Nursery and Garden Industry may be seriously affected by biosecurity issues that have emerged over recent years. As the industry is directly related in the production and distribution of plant material, all the environmental and biosecurity issues are closely interlinked. By adopting the structure and focus as supported by programs such as NIASA, EcoHort and this project it has enabled the Nursery and Garden Industry to begin to address the key issues and ensure that the inter connections between issues are considered and addressed. The following are the key benefits to industry from the completion of this project

1. Provision of Industry Specific Guidelines

- Guidelines will enable businesses to identify biosecurity risks
- Businesses will be able to implement controls at critical points within the production system to minimise the impact of such risks.
- The guidelines provide method of measuring ,assessing and recording business processes to ensure compliance with effective risk management.

2. Capacity Building
- Development of an effective Biosecure HACCP program involves a significant management commitment, and recognition for effective record management.
- Staff training in areas of monitoring and record keeping
- Staff education in risk management and control strategies should an incursion occur.

3. Business Improvement
- Biosecure HACCP is an integral part of the Nursery & Garden Industry's suite of programs that encourage continuous improvement.
- The program will also enable the industry to have a network of skilled personnel able to assist in the event of a major incursion into Australian Horticulture.

FINANCIAL REVIEW

This project was originally started as NY 03046, extended to NY04030.
Final funding due to NGIA on completion of this report is $10,000

Appendices

The following attachments are fundamental to this report.

1. Biosecure HACCP Guidelines for Managing Biosecurity in Nursery Production :
    ISBN 978-0-9751444-5-9
2. Powerpoint Presentation made to NGIA Conference March 2008
3. Industry promotional leaflet for Program

BioSecure *HACCP*

GUIDELINES FOR MANAGING BIOSECURITY IN NURSERY PRODUCTION

Nursery Production Farm Management System
(FMS)

Managing Production Risks

Presented
By
John McDonald
Nursery Industry Development Manager
Queensland

HAL
Know-how for Horticulture™

Nursery & Garden Industry
Australia

Nursery & Garden Industry
Queensland

An Essential Industry

- Greening a nation
    - Urban horticulture
    - Fruit & vegetable production
    - Forestry production
    - Interiorscape (green walls & roofs)
    - Revegetation & mine site rehabilitation
    - Cut flowers production

- Supporting national horticulture valued at over $10 billion annually

Farm Management Systems (FMS)

It is a property/business management program providing primary producers with the necessary tools to evaluate and continuously improve their business in the areas of:

productivity, profitability, professionalism & sustainability

---

Farm Management Systems

- Concept developed in Qld

- Who is involved?

  - **Nursery Production**
  - Cotton Industry
  - Sugar Industry
  - Fruit & Vegetable Industry
  - Dairy Industry
  - Chicken Meat Industry

FARM MANAGEMENT SYSTEMS (FMS)

- **FARM MANAGEMENT SYSTEM (FMS)**

    - **Sound Framework detailing an FMS is in place**
    - **Industry owned and driven FMS**
    - **Industry specific programs = industry FMS**
    - **Focus on profitability & sustainability**
    - **Self regulation**

    - **Government recognition of industry programs**

    - **Status:**
        - **MoU signed by Qld Gov (Premier) & Industries (QFF) April 2005**
        - **FMS Framework developed – ratified October 2005**
        - **On the national Primary Industries Ministerial Council agenda**

Why a Farm Management System?

- **Profitability**
    - Production inputs
    - Efficient system design
- **Productivity**
    - Technology adoption
    - R&D implementation
- **Sustainability**
    - Land & water
    - Market access
- **Professionalism**
    - Stewardship (Land, Water & Air)
    - Corporate responsibility
    - Co-regulation

Regulatory Pressures

- **All levels of Government**
- Business right of operation
- Intra & inter state trade
- Environmental footprint
- Invasive plants
- Resource access (water, etc)
- Emergency plant pest incursion
- Evidence of absence (exotic plant pests)
- Climate change – carbon trading??

Nursery Production FMS

❖**NIASA –** Best Management Practice

❖**EcoHort™ –** Environmental Management System (EMS)

❖**BioSecure** *HACCP* - on-farm biosecurity

Nursery Production FMS

- **Underpinning strengths of Nursery Production FMS**

  - Industry owned
  - Independently audited
  - Risk assessment based approach
  - Technical assistance provided on-farm
  - Action planning & prioritisation assistance
  - Research & Development based content
  - Recognising current on-farm practices
  - On-farm records demonstrate due diligence
  - Driven by continuous improvement
  - Focused on business profitability & sustainability

NIASA

Nursery Industry Accreditation Scheme Australia
'Best Management Practice'

- Production system focus
  - Nursery design, layout and operation
  - Production efficiencies
- General production hygiene
  - Plant pests, diseases & hygiene
  - Production system infrastructure
- Technical Best Management Practice
  - Water – access, use and recycling
  - Growing surfaces
  - Crop nutrition & growing media
  - Measuring & monitoring
  - OH&S

What is 'Best Management Practice' ?

- Best Management Practice businesses have effective infrastructure and management in place to produce **consistent** quality product.
  - **HOW?**
- Effective hygiene to minimize plant pests and diseases.
- Good plant management to produce vigorous plants.
- Environmentally sustainable practices.
- Professional operations and management to provide **consistent** quality products.

EcoHort™
Environmental Management System (EMS)

### Guidelines for Managing the Environment In Production Nurseries

EcoHort™
Environmental Management System

- **Land**
  - Contamination
  - Erosion
- **Water**
  - Access & use
  - Recycling
  - Contamination (drainage)
- **Air**
  - Odours
  - Particles
- **Noise**
  - Vehicles
  - Equipment
- **Waste**
  - Storage & visual impact
  - Disposal
  - Minimisation
- **Biodiversity**
  - Impacts downstream
  - Maintaining on site flora & fauna

EcoHort™
TARGET VALUES

- **Continuous Improvement**
  - Monitor
  - Measure
  - Record
  - Improve
- **Realistic Goals**
  - Achievable targets
  - Appropriate time frames
  - Budget for change

PLAN   DO

REVIEW   CHECK
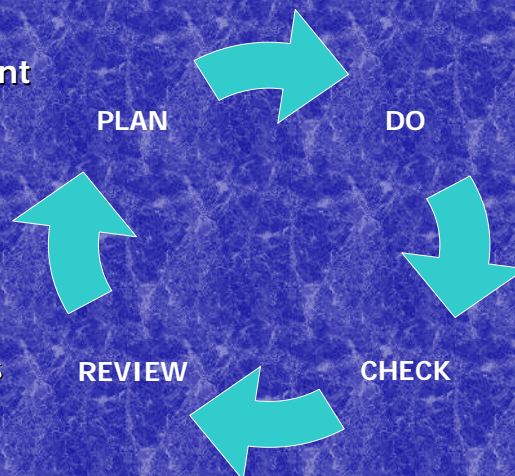
EcoHort™

- **Nursery Production EMS**

  - Audited based on Environmental Target Values
    - Continuous improvement
    - Identify priority areas
    - Establish improvement plan
    - Audit processes
  - Baseline entry level
    - NIASA Accreditation required before moving into audit program
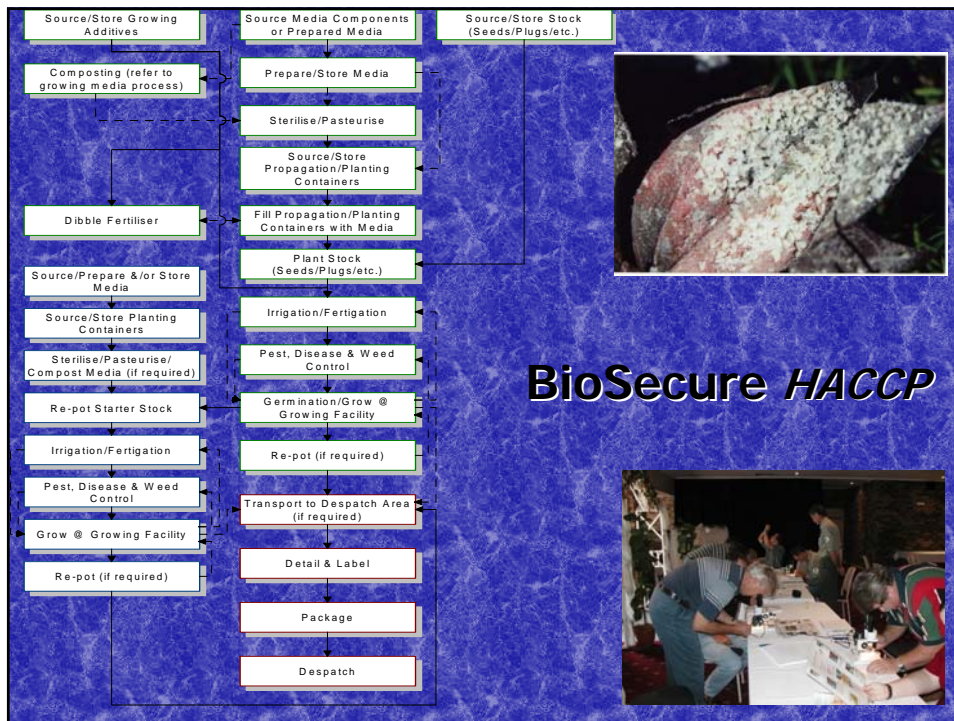

BioSecure *HACCP*

- Biosecurity strategy for on-farm implementation

- HACCP – Hazard Analysis Critical Control Point

- World standard in Risk Management processes
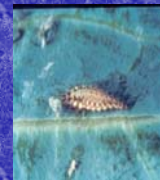
BioSecure *HACCP*

- On-farm Biosecurity program
  - Recognises current industry best management practice
  - Validates industry NIASA program plus....
  - Demonstrates due diligence through record keeping & monitoring
  - Recognises industry training and skills
  - Provides a rigorous pest, disease & weed management system on-farm
  - Manages the on-farm pest, disease & weed risk from external sources
  - Minimises the risk of exotic plant pest movement

BioSecure *HACCP*

Implementing Nursery Production FMS

Grower Outcomes:

- 40 – 50% water use efficiency improvements
- 140mm pot at dispatch cost from 5 – 48 cents
- 150m² loss into $40 000 per annum gain
- Market access - High Health Status
- Local government approval

Potential scenario

- Current water (potable) cost of $1.60 per kilolitre
  - Equals $1600 per Megalitre
- Average water use (Qld) 17 Megalitres per hectare
- A 2 hectare production nursery water cost = $54 400 per annum
- Apply irrigation **Best Practice** and reduce water use by 40%
  - Save $21 760 per annum for *new* total water charges of $32 640 per annum (10 Meg/hectare)

Potential scenario

- Biosecurity (Emergency Plant Pests)
- Average of 40 new incursions per annum
- Red Imported Fire Ant (7 year program)
- $235 million national eradication program
- $18 million industry cost per annum
  - Lost markets
  - 28 day inspections
  - Pesticides, labour, documentation, etc
- Total industry investment to date $126 million

Conference Reminder!

- Dr Will Healy (Wednesday 26/03/08)
  - Slide 15: Changes in Supply Chain
  - Certification
    - 3rd Party to say we are "OK"
    - Sustainable production
    - Water
    - Energy
    - Chemicals
    - Waste management
    - Environment & social
  - Automation
    - Labour availability & cost
  - Lean flow
    - Streamlining production
    - Improve response time

Answering Dr Will

- Dr Will Healy (Wednesday 26/03/08)
  - Slide 15: Changes in Supply Chain
  - Certification
    - 3rd Party to say we are "OK" **- Nursery Production FMS**
    - Sustainable production
    - Water **- Nursery Production FMS**
    - Energy **- Nursery Production FMS**
    - Chemicals **- Nursery Production FMS**
    - Waste management **- Nursery Production FMS**
    - Environment & social **- Nursery Production FMS**
  - Automation
    - Labour availability & cost **- Nursery Production FMS**
  - Lean flow
    - Streamlining production **- Nursery Production FMS**
    - Improve response time **- Nursery Production FMS**

Who do you call?

- NSW – Michael Danelon
- Vic – Robert Chin
- SA – Grant Dalwood
- TAS – Peter Bobbi
- WA – Mark Tucek
- NT – Megan Connelly
- QLD – John McDonald

BioSecure *HACCP*
On-farm biosecurity for nursery production

The Nursery and Garden Industry Australia (NGIA) in partnership with Horticulture Australia Limited (HAL) have developed a set of Guidelines that will provide a systematic approach for production nurseries to assess their biosecurity hazards and responsibilities. **BioSecure *HACCP*** is the industry specific biosecurity program designed to assist growers assess their current and future pest and disease risks and guide the businesses in the implementation of management strategies at critical control points.
.

A Program for Growers

BioSecure *HACCP* is the on-farm biosecurity program for production nurseries in Australia. The program validates many of the Best Management Practice strategies employed under the Nursery Industry Accreditation Scheme Australia (NIASA). The program seeks to identify internal and external threats to the integrity of a business's biosecurity preparedness. **BioSecure *HACCP*** is a set of protocols and procedures that enable a business to manage biosecurity risks establishing an effective internal quarantine process for both imported and exported plant material.

Biosecurity in nursery production is the protection of the enterprise from the introduction of insects, diseases and other biological organisms that may adversely impact on the business. It is the management of these risks through exclusion, eradication and control defined under a sound risk management strategy that will ensure the business remains protected. **BioSecure *HACCP*** is the program that will provide growers with the decision making tools to support on-farm biosecurity and guide in identifying the relevant risks and the steps needed to control them.

The Australian nursery industry is a diverse sector of horticulture providing greenlife to a broad range of end users. Nursery production includes growers supplying:
- Ornamental retail
- Landscaping
- Interiorscape
- Vegetable producers
- Fruit producers
- Forestry plantations
- Re-vegetation programs
- Cut flower producers

This diversity of cropping dictates the wide distribution of production nurseries into almost all areas of Australia and the movement of greenlife across state borders and into towns, cities and agricultural/horticultural regions. The movement of live germ plasm (greenlife) has the potential to carry pests and diseases into areas otherwise free from these threats which can impact adversely on nursery production, cropping

systems, pastures and the wider landscape. The nursery industry has a responsibility to manage these risks and ensure that the greenlife being distributed across Australia is pest and disease free and is of minimal risk to the rest of agriculture/horticulture and the general environment.

Australia averages approximately 40 emergency plant pest incursions per year. Most of these are identified relatively early and are eradicated or put under an eradication/management program designed to remove the pest from Australia within a suitable timeframe. The nursery industry is, on most occasions, impacted on at some point during the incursion response at either an individual or industry level costing growers significant loss of financial returns. This loss can be generated through market access restrictions, compliance costs and crop destruction or quarantine restrictions that impact on product supply and distribution.

The nursery industry believes by having an on-farm program that demonstrates a process of managing the risks associated with biosecurity will assist growers meet their broader obligations and gain recognition at a government level. Ensuring on-going market access is a priority for any business. Therefore a rigorous process that protects the business from internal and external biosecurity threats is a valuable addition to the management structure of the business.

Hazard Analysis Critical Control Point (*HACCP*) is the world recognised standard in risk management processes. It is a formal process of risk/hazard identification, nominated risk control points and a verification process used to consistently manage threats to the production cycle. **BioSecure *HACCP*** has been developed under the 12 defining principles of *HACCP* providing a creditable risk identification and management process.

The **BioSecure *HACCP*** risk management system encourages a business to maintain the strictest internal quarantine procedures possible and record the actions taken at critical control points. With improved hazard analysis and control measures in place the business is better protected in the event of a biosecurity threat or impact. Importantly, the process will support future market access both domestically and internationally.

BioSecure *HACCP* addresses:	**BioSecure *HACCP* assists in:**
- Internal quarantine disciplines - Effective crop monitoring models - Nursery production biosecurity hazards - Biosecurity critical control points - Nursery production hygiene processes - Plant protection systems - Surveillance, monitoring & recording	- Protecting market access - Recognising investment in biosecurity - On-site assistance in HACCP identification - Pest/disease management reducing losses - Providing customer confidence in product - Reduced costs via government co-regulation - Positioning a business for export

Biosecurity and the Horticulture Industry

Industry peak bodies, including the Nursery & Garden Industry Australia, are working with Plant Health Australia (PHA) to become involved in the biosecurity process and have input into decisions made and methods employed in the future management of

biosecurity threats. Industry involvement may ensure that decisions made and directions taken have broad industry concerns addressed but can not possibly focus on the needs and wants of each individual business.

Therefore Industry bodies are developing and introducing industry programs to assist business enterprises to manage the risk of biosecurity now and into the future. The nursery industry believes that an on-farm program such as **BioSecure HACCP** will provide growers with a valuable tool to guide in implementing a whole of industry biosecurity strategy.

Nursery Industry Biosecurity

NGIA believes the long term sustainability of the nursery industry is through effective management of future key threats and risks. Membership of PHA has made possible the development of the NGIA Biosecurity Plan which both aims to minimise the incursion of new pests and diseases and also provide a mechanism with which to manage any such incursions. The nursery industry has also joined other industries and governments around Australia with the signing of the Emergency Plant Pest Response Deed (EPPRD). The EPPRD has been set up to provide the legislative and financial framework to manage specific pest and disease incursions as they occur. The Deed clearly outlines how outbreaks will be managed and how governments and the industry will share the cost.

Nursery Enterprise Biosecurity.

Biosecurity poses threats to the productivity and marketability of nursery products and the early detection and identification, along with positive preventative and response strategies may be the key to long term nursery sustainability.

Market access will no longer be guaranteed by product and quality alone. Increasing competition and the raising of standards will result in restricted access to some local and international markets in the future unless additional concessions and conditions are met. Growers will be required to demonstrate that their products are produced in an environmentally sensitive manner, are safe, and that they are free from unwanted pest, disease and weeds. Growers will need to use their experience and common sense, implement good biosecurity and farm hygiene measures, and adopt established industry best management practice programs to safeguard their production and markets.

Growers will need to apply on-site safeguards to provide individual property protection, a range of checks and balances that can be recognised as providing management and control to any biosecurity risk. A risk assessment process that can be demonstrated is essential to maintain market access.

The aim of any Nursery biosecurity system should be to maintain the nursery site and nursery stock free of unwanted pest, disease or weed threats by prevention, early detection and planned, managed response strategies.

The development of **BioSecure *HACCP*** under the HACCP methodology has identified the potential hazards and risks associated with the processes of nursery production. It has also defined the critical control points and the actions that a business needs to take, at these control points, to manage the potential impact on

the business and to external stakeholders. Finally **BioSecure *HACCP*** provides templates for recording the various actions and strategies the business applies to manage their biosecurity risks. Records are an important tool in demonstrating an activity has taken place as well as providing valuable traceback information that can be used to validate a particular decision.

An example is the introduction of a pest onto the business through imported greenlife e.g. tubestock. The **Hazard** is the introduced pest, the **Risk** is the volume of greenlife imported onto the site therefore the higher the volume the greater the risk is of introducing the hazard (pest), the **Critical Control Point(s)** are; 1) the supplier and the biosecurity system they have in place and 2) introduction of greenlife on-site and the inspection, treatment and placement of the greenlife once on-site. The **Record** is an approved supplier list, a plant import inspection register, pesticide treatment diary and a policy of imported stock being placed in a quarantine area.

To gain the formal **BioSecure *HACCP*** Certification a business must first achieve NIASA Accreditation. A business may choose to apply any aspect of **BioSecure *HACCP*** while working towards certification.