

NY99027

**Implementing NIASA in the NT through
Technology Transfer of Best Practice**

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**Northern Territory Department of Primary
Industry and Fisheries**



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Setting the Standards

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Fisheries.**

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Purpose: This report documents the implementation of NIASA in the Northern Territory through technology transfer involving growing media management workshops and Waterworks.

Acknowledgment: Funding for this project was received from Nursery Industry Association of the Northern Territory members and matched by HRDC. The Northern Territory University and Northern Territory Department of Primary Industry and Fisheries provided facilities and staff to assist in the running of several workshops.

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INTRODUCTION

The great Chinese poet, Kuan Tzu observed "If you *give* someone a fish, they will have a single meal. If you *teach* them how to fish, they will eat all their lives!" Here in lies the secret of success or failure for NIASA implementation in the Northern Territory. Success for NIASA will heavily rely on the principles of adult learning. Its implementation will have to address learners needs, help solve their problems and be readily useable in their business. The following report discusses HRDC funded components of the NIASA implementation process in the Northern Territory.

NIASA in the Northern Territory has had a short life. Since its inception in 1997 there have been 3 accredited businesses and 4 in the process of accreditation. This represents approximately 10% of Territory nursery businesses. Consistently clients have raised the need to learn more about growing media and irrigation management. It has been over six years since workshops for both these areas of nursery production have been held in the Northern Territory and now with the NIASA guidelines, industry has a framework to support their new learning.

The local industry association NGINT (formally NIANT) have regularly identified workshops for growing media and irrigation management as part of industry training needs. The NGINT executive, have fully endorsed the proposed HRDC funded workshops for growing media management and Waterworks. A study in 1999 as part of the expanded duties of the SA NIDO identified a high industry ranking for the NT, in regard to learning more on irrigation and drainage. Also plant nutrition and growing media ranked high in terms of industry training needs, (Frodsham, 1999). Also in 1999, a NTDFIP and NGINT sponsored survey of over 30 local growing media samples identified that less than 15% of samples met the Australian standard, further highlighting the need for improving industry knowledge on these issues.

TECHNOLOGY TRANSFER STRATEGY AND ACTIVITIES

Technology Transfer Strategy

The NIASA Guidelines form the basis for key areas of nursery industry "best practice". Through a number of industry surveys prominent issues have been identified and link well with the main components of NIASA. Central to the HRDC funded component of the project are the principles of adult learning and the use of Bennett's Hierarchy in planning, defining objectives and evaluation. The hierarchy is a means of identifying inputs required for certain activities involving people, who's reactions if favourable, could lead to a shift in knowledge, skills, attitudes and aspirations which ultimately result in a behavioural change influencing an end result, (Bennett, 1976; Malouf, 1994).

The level of most interest for this project is at Bennetts level 5 and 6. Level 5 objective is to achieve a change in people's knowledge, attitude, skills and/or aspirations (KASA) for key components of NIASA, namely growing media and irrigation management. The level 6 objective is to ensure there has been a practice change and the adoption of new technology.

The defining of this project's objective follows the simple "*What, who, when and where*" model. This embraces Bennett's levels 1 to 4, being inputs, activities, people and reactions, respectively.

What = happily acquire skills and greater knowledge on the management of growing media and irrigation that will allow them to initiate change towards better nursery management practices

Who = those attending the workshops

When and *Where* = at Darwin within 6 months

The objective for the project can then be stated as:

"Two-thirds of local nurseries attending the Darwin workshops will have acquired skills and greater knowledge on growing media and irrigation management. This will allow them, within 6 months, to initiate change towards better management practices as embraced by the NIASA Best Practice guidelines."

Evaluation of the TT process occurred at the workshop with participants immediate feedback on their feelings of workshop environment, enjoyment and content were received, this being up to Bennetts level 3. A second evaluation was undertaken 3 months post-workshop, where practice change, that is adoption of new practices, technology and change in behaviour were determined. This is typically Bennett's level 5 and 6.

ACTIVITIES

Waterworks

17 participants attended Waterworks, comprising of wholesale palm, potted colour, vegetable and herb seedling producers and retail nurseries. Chris Rolfe delivered the workshop with assistance from NT Department of Primary Industries and Fisheries (NTDPIF) staff. Funding was supplied from HRDC, NGINT and NT DPIF. Chris Rolfe also visited several local businesses prior to the workshop to discuss general irrigation design and management.

Growing Media workshops

Two separate workshops were run with the first catering for the needs of allied industries, principally media manufacturers, with 7 participants. The second workshop was run for retail and wholesale nurseries and involved 16 participants. Prior to both workshops, separate meetings were held so as to ascertain what the primary needs of participants were. This needs analysis formed the basis for workshop format and content. Keith Bodman delivered the workshops with assistance from NTDPIF and NT University staff. Funding was provided from HRDC, NGINT and NT DPIF. Keith Bodman also visited several local businesses prior to the workshop to discuss general growing media management.

Needs analysis of industry prior to growing media workshops.

- *What does a good potting mix consist of?*
- *What characteristic does a good potting media need to display?*
- *How important is potting media to nurseries?*
- *What to expect from potting media, what's its influence?*
- *Media testing for NIASA accreditation standards*
- *What is a good potting media?*
- *Fertiliser for long and short term crops*
- *Storage of potting media*
- *What is nitrogen draw down? How can this affect my plants?*
- *Less jargon more layman terms used at the workshop,*
- *Health issues with growing media,*
- *Discuss different forms of nutrients*
- *Modifying pH of mixes,*

Other issues raised by media manufacturers were testing of *local raw materials* and whether they would comply with Australian standards, a need to learn more on *NIASA criteria* and for Keith Bodman to visit their sites.

EVALUATION

Evaluation of reactions and acceptance of the workshops

Participants reactions to Growing Media workshop, Darwin, February 2000.

	Yes	Partly	No
• <i>Did the workshop meet your expectations?</i>	23		
• <i>Was the information presented clearly?</i>	21	2	
• <i>Do you think you will be able to use information from the workshop to improve operations in your nursery?</i>	21		2
• <i>Was the venue comfortable and could you see and hear clearly?</i>	22	1	
• <i>Was the meal and refreshments satisfactory?</i>	22	1	
• <i>Was the workshop good value for money?</i>	23		

Participants overall impressions of growing media workshops:

Positive +	Negative -	Things to change ▲
<ul style="list-style-type: none"> • Thankyou for an interesting day • fairly well presented, sufficient time for answering questions. • Excellent. It should be repeated in 2 to 3 years time • Very good. • Very interesting, all round excellent • Good course/ much enjoyed. • Well planned. Well presented • All clear and easy to understand and helpful • Most valuable • The presenter was very good • Good job • Thankyou to Keith- not a single blink • Good clear presentation 	<ul style="list-style-type: none"> • Too many people for one instructor • Photo copying was very poor • Specific to pine bark materials 	<ul style="list-style-type: none"> • Should have been specific work sheets • Could have gone over two days and be slowed down a touch

Participants reactions to "Waterworks" workshop, Darwin, November 1999.

	Yes	Partly	No
• Have you enjoyed the workshop?	14		
• Do you consider \$40.00 a fair price to pay?	14		
• Was the information presented clearly?	14		
• On completion of this course, will you be making any changes to your irrigation systems?	10	4	
• Do you feel that you could save money by implementing the WaterWorks principles?	12	2	
• Which section did you find most helpful?			
	• Measuring = 6		
	• Sprinkler performance = 5		
	• Designing layouts = 5		
	• Recycling = 2		

-
- *What topics should be covered in future workshops?*
 - same module = 3
 - Orchard layout = 1
 - Landscape layout = 1
 - Construction tips = 1
 - Sprinkler design = 1
-

Evaluation of adoption

Growing media

Participants were surveyed 3 months after the workshop to evaluate adoption of new practices. There had been a significant change in practice and adoption of new technology, with several participants actively monitoring growing media.

Adoption of new practices for growing media management

	Yes	No
• Did you own a pH or conductivity meter prior to the workshops?	2	10
• Have you purchased or upgraded your pH and conductivity metres since the workshop?	7	5
• Are you using them to manage your media now?	4	3
• Did you regularly monitor air-filled porosity (AFP) prior to workshop?	0	12
• Are you monitoring AFP now?	10	2

Waterworks

On completion of the workshop participants were surveyed and all business had implemented some change in their irrigation management. Four had undertaken a complete redesign of their systems. A six months post workshop survey indicated that all participants, bar one, were still using some component of the workshop, particularly the Waterworks CD manual. Half indicated that they would like to do the Waterworks program at regular intervals, especially given the rate of change that occurs with irrigation technology.

DISCUSSION

With the implementation of NIASA in the Northern Territory we have attempted to embrace the principles and techniques of adult learning. Two such principle are that learners must set their own learning goals and that learning must build upon the learners experience, (Malouf, 1994). Prior to the workshops we initiated a needs analysis for industry, where they had the opportunity to identify their needs and

establish the problems or issues they wanted resolved. These then formed the basis for the workshop programs. We successfully utilised Bennetts Hierarchy for the planning, setting of objectives and for evaluation of the workshops and found this a very useful technique.

One of the difficulties with the current NIASA implementation project for the NT is that much of the current "Best Practice Guidelines" for national accreditation are perceived by many local industry members to be some what alien to their needs. This may in part be due to the guidelines having been developed by interstate industry leaders and ratified by the executive of the national industry body. While the NT had representation on the executive, in the past, many local members have not been inclusive of the guidelines' development. This has somewhat impeded the implementation of NIASA in the NT.

Another impediment was the implementation was undertaken by a Government agency, which influenced industry's perception of the scheme. Many in the industry assumed NIASA was a government initiative, similar to many of the old nursery "clean schemes", rather than an industry initiative. This now has been addressed with the establishment of the first NT NIASA technical committee in 2000 and the hand over of the technical duties to an industry funded position.

To overcome these problems, we were able to target important nursery production issues that industry had identified over a number of years, namely irrigation and growing media management. We further refined the process through needs analysis and Bennetts Hierarchy, which gave a framework for the design and evaluation of the workshops.

The success of any technology transfer process can be evaluated in the change in people's knowledge, skills and aspirations (Bennett's level 5) and in practice change, that is adoption of new practices, technology or change in behaviour (Bennett's level 6). In both instances we believe we have achieved some positive shift with our clients, which ultimately will bring about a better understanding of NIASA and its role in nursery "best practice" production in the Northern Territory.

Finally, as a direct result of these workshops, 3 wholesale businesses and 2 media manufacturers have joined the NIASA scheme. This is strong evidence we have achieved a change in behaviour and the adoption of new practices the ultimate objective of any technology transfer process.

RECOMMENDATIONS

- NT DPIF to continue assisting in the transition of NIASA responsibility to NGINT - NIASA Technical committee.
- We strongly recommend that Adult learning principles and techniques be embraced in the management of NIASA in the NT.
- Future technology transfer projects under NIASA, should wherever possible, be delivered by local personnel.

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