



GOBIERNO DE CHILE
FUNDACIÓN PARA LA
INNOVACIÓN AGRARIA

PROGRAMA DE FORMACIÓN PARA LA INNOVACIÓN AGRARIA

APOYO A LA PARTICIPACIÓN

**INFORME TÉCNICO Y DE DIFUSIÓN
“ACTUALIZACIÓN DE LA INVESTIGACIÓN
INTERNACIONAL Y MANEJO PRODUCTIVO DE
PROTEACEAS EN MELBOURNE Y AUCKLAND”**

JUNIO 2004



CONTENIDO DEL INFORME TÉCNICO Y DE DIFUSIÓN

1. Antecedentes Generales de la Propuesta (no más de 2 páginas)

Nombre: Actualización de la investigación internacional y manejo productivo de Proteáceas en Melbourne y Auckland

Código: FIA-FP-L-2004-1-A-001

Postulante : Flavia Schiappacasse Canepa

Entidad Patrocinante: Universidad de Talca

Lugar de Formación (País, Región, Ciudad, Localidad): Auckland, Nueva Zelanda y Melbourne, Australia

Tipo o Modalidad de Formación (curso, pasantía, seminario, entre otros): Conferencia

Fecha de realización (Inicio y término): 27 de marzo a 10 de abril de 2004

Justificación y Objetivos de la Propuesta:

El cultivo comercial de Proteáceas comenzó alrededor de los años 70, experimentando en los últimos 15 años un gran aumento de la demanda, se cultivan como flor de corte o follaje decorativo en varios países del mundo. Los principales productores de Proteáceas en el mundo son: Australia y Sudáfrica. También Estados Unidos e Israel son productores importantes aunque con una menor superficie. Además se cultivan en España, Portugal, Salvador, etc.

En Chile, la Universidad Católica de Valparaíso en el año 1993 introdujo algunos cultivares en la zona de Quillota. Luego, se ejecutó un proyecto FONTEC, junto con la Universidad Católica de Valparaíso, en Litueche donde se introdujeron algunos cultivares de Protea, Leucadendron y Leucospermum y del cual los dos productores participantes del proyecto continuaron con la producción de algunos cultivares de Leucadendron y a la fecha tienen cultivado alrededor de 30 ha cada uno. En el año 1998, Flores del Fynbos en San Antonio introdujo algunos cultivares de Proteáceas en esa zona y actualmente dispone de cerca de 3 ha con el aporte de un proyecto financiado por la Fundación para la Innovación Agraria (FIA). Entre 1998 y 2000 la Universidad de Talca ejecutó un proyecto PRODECOP-SECANO en la zona de Curepto, donde se estableció y evaluó satisfactoriamente entre otras especies el cultivar Leucadendron 'Safari Sunset. Desde 2001 la Universidad de Talca está desarrollando un proyecto FIA, en la costa de la VI y VII regiones, donde se está evaluando el cultivo comercial de algunos cultivares de Protea y Leucadendron principalmente. El proyecto se está desarrollando en las localidades de Putú, Licantén y Pichilemu.



Desde el año 2002 se están financiando por FIA dos nuevos proyectos, uno en el predio de Pichilemu y otro en el predio de San Antonio, en los cuales se han introducido nuevos cultivares.

En resumen, la producción de Proteáceas en Chile es muy reciente y la gran mayoría de las plantaciones no tiene más de 2 o 3 años, con una o dos temporadas de cosecha de flores. Las flores han sido vendidas en el mercado local y también se han exportado.

Los productores de Litueche durante el otoño pasado exportaron la mayor parte de su producción del cultivar *Leucadendron* 'Safari Sunset' al mercado holandés con excelentes retornos. También flores del Fynbos desde el otoño pasado está exportando, por medio de Chilfresh, *Leucadendron* 'Safari Sunset' y *Protea* 'Pink Ice' entre otras Proteáceas.

Como se mencionó anteriormente la producción de Proteáceas en Chile es bastante reciente, por lo que existen muchas dudas respecto al cultivo principalmente respecto a la etapa productiva. Por esta razón y en busca de resolución a estas dudas es que tanto productores como asesores técnicos del cultivo han participado en distintas actividades relacionadas con el tema apoyados por el financiamiento de FIA. En el año 2001 parte del equipo técnico del proyecto de la Universidad de Talca junto a otros productores nacionales asistieron a un curso relacionado con el manejo técnico de las Proteáceas realizado en Sudáfrica y dictado por ARC Fynbos. En Junio del año 2002 el proyecto de la Universidad de Talca trajo a un especialista sudafricano para recibir asesoría técnica principalmente en lo que es poda de formación, quien visitó a todos los productores participantes del proyecto y a los no participantes también. También a fines de noviembre de 2002 dos integrantes del equipo técnico del proyecto asistieron a una pasantía a Portugal, donde se recogió información técnica de una plantación de Proteáceas de 5 años, y recientemente en septiembre de este año un grupo de asesores y una productora asistieron en Sudáfrica a un curso y visitaron plantaciones, todo organizado por el especialista sudafricano que visitó nuestro país.

En Chile, desde agosto del año 2002 se han realizado reuniones cada 3 o 4 meses en los diferentes predios de los productores de Proteáceas donde han asistido los productores, asesores técnicos e investigadores del área y se han discutido diferentes temas de interés y que representan un problema para los productores como: enfermedades, problemas fisiológicos sin identificar, problemas en la poscosecha de algunos cultivares, desconocimiento en cuanto al riego y fertilización, y otros problemas que se pueden solucionar al conocer otras experiencias de productores o investigadores con más años trabajando en el rubro.

Tanto para los productores como asesores e investigadores de nuestro país es importante conocer los avances en las investigaciones realizadas en los últimos años en el cultivo de Proteáceas en el resto de los países cultivadores principalmente en temas como poscosecha, donde se presentan grandes problemas en algunos cultivares de *Protea*; mejoramiento genético; manejo de riego y fertilización. En estos temas existen muchas inquietudes; se desconoce si es necesario fertilizar y que niveles pueden ser perjudiciales, por otro lado no se sabe cuanta agua requieren los cultivos. También es importante conocer las plagas y enfermedades que atacan a los cultivos en otros países y como se controlan. En este último punto se han realizado dos memorias en la Facultad de Ciencias

Agrarias de la Universidad de Talca relacionadas con la prospección de enfermedades e insectos presentes en los cultivos de Proteáceas en la mayoría de los predios establecidos en el país.

Por la razón mencionada anteriormente es que se hace necesario asistir a los Congresos organizados por IPA, que es la Asociación Internacional de Proteas, que se realizan cada dos años en diferentes países productores de Proteáceas y es la instancia donde se puede generar un flujo de información referente a los distintos problemas que presenta cada país en el manejo del cultivo y estar a la vanguardia con las diferentes investigaciones que están realizando las distintas universidades e institutos relacionados con el tema. Además, se presentará un trabajo y un poster que corresponden a un resumen de la Memoria de grado denominada “Prospección de enfermedades en los cultivos de Proteáceas en Chile” realizada por un alumno memorista de la Universidad de Talca. El objetivo de la presentación es dar a conocer las primeras investigaciones que se están realizando en nuestro país respecto al tema de las Proteáceas. En dichos congresos, un representante de cada país debe presentar un reporte acerca del cultivo de Proteáceas de su propio país, y es importante esta instancia para dar a conocer la superficie cultivada, especies, cultivares y proyecciones.

Se postula a esta gira en la que en forma práctica se conocerán las diversas técnicas de manejo a los cultivos realizados en la zona de Melbourne, Australia además, se podrá conocer otros sistemas productivos, calidad de las varas que se transan en ese mercado, viveros, sistemas de propagación y calidad de plantas que comercializan. También durante la estadía se asistirá al Congreso Internacional de Proteas en Melbourne (4 días) para conocer los avances en las investigaciones realizadas en los últimos dos años en el cultivo de Proteáceas. Además se presenta la posibilidad de hacer escala en Auckland, Nueva Zelandia, para visitar algunos viveros de plantas y productores de Proteáceas.

Objetivos:

- Conocer sistemas de propagación en viveros
- Conocer el manejo técnico de los cultivos
- Establecer contactos e intercambio de experiencias
- Conocer las investigaciones que se están realizando
- Conocer los precios a los que se transan las Proteáceas en el mercado local

Resultados e Impactos Esperados

Se conocieron diferentes experiencias de cultivo en los dos países y en la conferencia se conocieron las diferentes áreas de investigación actual en proteáceas en diferentes países. Se realizaron varios contactos con los asistentes a la conferencia, entre ellos a posibles asesores que podrían ser traídos a Chile en el futuro.



2. Breve Resumen de los Resultados:

En esta actividad se conocieron diferentes experiencias de cultivo de proteáceas y otras flores y follaje australianos. Se conoció el uso de esta flora en paisajismo y como flores cortadas, y la importancia que tienen en la industria de ese país.

En la conferencia misma se conocieron investigaciones realizadas en los diferentes países participantes, y la realidad y problemas de cada uno de ellos.

También se establecieron contactos, en especial con los asistentes al congreso.

3. Itinerario de Trabajo Realizado: presentación de acuerdo al siguiente cuadro:

Fecha	Actividad	Objetivo	Lugar
29/03/04	Llegada a Auckland		Nueva Zelanda
29/03/04	Visita a vivero Kingflora	Conocer sistemas de propagación	Auckland
29/03/04	Visita a viveristas de la zona de Auckland	Conocer sistemas de propagación	Auckland
30/03/04	Llegada a Melbourne		Melbourne, Australia
31/03/04	Visita a vivero de plantas nativas de Australia, de Wayne Knight	Conocer manejo técnico Establecer contactos e intercambio de experiencias	Colac
31/03/04 tarde	Visita a una plantación antigua de proteáceas, ecoturismo	Establecer contactos e intercambio de experiencias	Colac
1/04/04	Visita a jardín privado del botánico Alistair Watt	Conocer flora nativa	Colac
1/04/04 tarde	Visita a parque de plantas nativas Carlisle Reserve Park, Otways	Conocer flora nativa	Alrededores de Melbourne
2/04/04	Visita a jardín privado de plantas australianas	Conocer uso paisajístico de flora nativa	Barogarook
3/04/04	Visita a plantación de arándanos y viaje a Melbourne	Conocer experiencias en cultivo de arándano	Colac
3/04/04	Bienvenida a Conferencia		Melbourne
4/04/04	Visita a Melbourne International Flower and Garden Show	Conocer el uso de proteáceas y otras flores en arreglos florales y visita a diferentes stand de productos relacionados con floricultura y jardinería	Melbourne
5/04/04	Conferencia IPA	Participación	Melbourne
6/04/04	Conferencia IPA	Visita a Proteaflora y Tesselaar	Monbulk

7/04/04	Conferencia IPA	Participación	Melbourne
8/04/04	Vistita al mercado de flores de Melbourne	Conocer precios y calidades de flores en el mercado	Melbourne
9/04/04	Regreso a Santiago		

4. Resultados Obtenidos:

Conocer sistemas de propagación en viveros

Se visitaron las instalaciones de Kingflora, en las cercanías de Auckland, Nueva Zelanda, donde se vió la forma de propagar proteáceas; en ese vivero tratan las estacas con 2000 ppm de AIB y utilizan oasis como sustrato de enraizamiento, con posterior trasplante a vaso con tierra más piedra pómez. Además se incluye el fertilizante de lenta liberación, Osmocote, en dicho vaso, y luego también se aplica en cobertera en el campo, después del trasplante.

En uno de los viveros y jardines privados visitados en los alrededores de Melbourne se vieron plantas propagadas por semillas. Se nos enseñó la técnica para extraer las semillas de Banksia desde el fruto, lo cual se realiza por medio de aplicación de altas temperaturas. En los jardines se vio el uso y la importancia de las plantas australianas en su paisajismo.

Conocer el manejo técnico de los cultivos

En general, en ambos países, los predios son de pequeñas extensiones, y son de propiedad de personas que trabajan en otra actividad. Los dueños de Kingflora utilizan en sus nuevas plantaciones el sistema de mediería, en el que ellos aportan las plantas, la asesoría y la mitad de los gastos de cosecha, y las entradas se dividen por la mitad con el mediero.

Las plantas se fertilizan. En Kingflora no se utilizaba riego, mientras que en Australia se regaba, con excepción de algunos predios ubicados al sur, en lugares muy lluviosos. El sistema era por goteo, salvo algunas excepciones, en que usaban riego por aspersión.

En Auckland no se vio cosecha de flores durante la visita, y en los lugares visitados en Australia correspondían más bien a jardines de variedades, los cuales no vendían flores, sino que vendían plantas.

Establecer contactos e intercambio de experiencias

En la Conferencia se conoció a tres personas que trabajan en una empresa en Francia llamada Pronectar, quienes han desarrollado la tecnología para hacer del néctar un producto de calidad con varios usos, como en medicina, cosmética, nutrición y dermatología. Una de las plantas que más producen néctar es Protea repens, la cual podría ser cultivada en Chile con este fin.

Se contactó a Audrey Gerber, que trabaja en el Department of Primary Industries del Estado de Victoria. Ella ya había sido contactada en Sudáfrica en una visita realizada el año 2000, donde ella trabajaba en la Universidad de Stellenbosch realizando investigación en proteáceas. Ella fue una de

las organizadoras del congreso de Melbourne. Se le preguntó si estaría dispuesta a venir a Chile en julio o agosto a realizar una asesoría para los productores de proteas y se mostró muy interesada. Se contactó una empresa australiana que trabaja en creación de nuevas variedades de *Leucadendron* desde hace varios años, y que estaría interesada en probar el material en Chile. Se contactó a un investigador y un productor de Hawái que indicaron que están utilizando dextrosa para el control del ennegrecimiento de hojas en varas de *Protea*. Ellos estarán dispuestos a enviarnos información al respecto.

Conocer las investigaciones que se están realizando

La conferencia se dividió en 7 sesiones, las que se describen más detalladamente en el material entregado durante las charlas de difusión y que se adjuntan a este informe.

Conocer los precios a los que se transan las Proteáceas en el mercado local

El último día se visitó el mercado de flores de Auckland. La visita fue a las 5 de la mañana, con el objeto de ver la mayor cantidad de flores posible. Se vieron *Aconitum*, gladiolo, follaje nativo de Australia (*Podocarpus*, *Eucalyptus*), follaje de ciprés y cataño, follaje de pimineto, clavel, rosa, gerbera, *lisianthus* limonio, y *lilium*, entre otras. Las Proteáceas eran pocas. Había *L. Safari Sunset* a Aus\$2 a 2,5 por ramo de 10 varas. Había *L. Jester* e *Inca Gold* también. Las proteas que habían eran *Pink Ice*, de color más suave que los producidos en otras partes, a Aus\$1 cada una. También había *P. neriifolia*, a Aus\$4,5 el ramo de 10 varas, y una *Protea* blanca (cv. *Smoky Ive*), de la especie *P. neriifolia*, a Aus\$4,5 el ramo de 5 varas.

5. Aplicabilidad:

En nuestro país en algunos lugares hay condiciones edafoclimáticas similares a las condiciones de N. Zelanda y Australia en las cuales se han establecido exitosamente plantaciones de proteáceas. Actualmente en nuestro país hay cerca de 70 ha plantadas, que podrían aumentar en el futuro, debido a que existe demanda por estas especies en el mercado mundial, el precio es bueno, en Chile el costo de la mano de obra es aún relativamente bajo, y el costo de flete hacia EEUU no es tan alto como el de otros países para llegar a su mercado.

Es importante estar al día en especial en el desarrollo de nuevos cultivares porque la floricultura es muy dinámica y hay que estar preparados para realizar cambios.

Además, tanto en N. Zelanda como en Australia están desarrollando muy activamente su flora nativa con uso comercial, lo cual también debería tomar Chile como ejemplo, porque el uso de nuestra flora está subutilizado.



6. Contactos Establecidos:

Institución/Empr esa	Persona de Contacto	Cargo	Fono/Fax	Dirección	E-mail
Primary Industries Research Victoria	Audrey Gerber	Senior PIRVic Manager	3-5731-1244 3-57311223	P.O. Box 235, Myrtleford VIC 3737 Australia	Audrey.gerber@dpi.v ic.gov.au
INRA Francia	Bertrand Limier	Asesor Pronectar	33- 0466783724	421, Chemin du Chenil 30100-Alés- Francia	limier@ensam.inra.fr
The University of Queensland	Margareth Johnston	Senior Lecturer	61-7-5460- 1240	Gatton Qld 4343 Australia	m.Johnston@uq.edu. au
The University of Western Australia	Guijun Yan	Lecturer	61- 893801240	35 Stirling Highway, Crawley, W Australia 6009	gyan@agric.uwa.edu. au
Kingflora	John Francis	Director	64 94118129	Fletcher Rd., Waimauku, Auckland, N. Zelanda	franbro@xtra.co.nz
Cosmoflor	Fred van Wijk	Comercia lizador	61-3- 93744822	P.O. Box 446 Tullamarine Vic 3043, Australia	info@cosmoflor.com. au
Oudendijk Import	Don van der Meer	Import Manager	31-297- 387802	P.O. Box 1111, 1430 BC Aalsmeer, Holanda	info@oudendijkbv.nl
OZ Import	Jaap Stelder	Director	31-297- 386552	P.O. box 1076, 1430 BB Aalsmeer, Holanda	Jaap.stelder@ozimpo rt.nl
Queensland Government, Dep. of Primary Industries	Joanna Srhoj	Horticultu ralist	07-404- 84651	P.O. Box 1054 Mareeba Qld 4880, Australia	Joanna.srhoj@dpi.qld .gov.au



7. Detección de nuevas oportunidades y aspectos que quedan por abordar:

La empresa que realiza mejoramiento en *Leucadendron* estaría interesada en probar su material en nuestro país en los predios de los agricultores, y por consiguiente, se podría acceder antes que otros países a cultivares interesantes. Es importante explorar esta posibilidad.

Por otro lado, como se mencionó antes, tanto en Australia como en N. Zelanda se está investigando en el uso comercial de la flora nativa, lo cual Chile también tendría que hacer, dada la alta demanda por productos nuevos en flores y follaje cortado.

También sería interesante explorar el uso de proteáceas como plantas de jardín, viendo el ejemplo de los australianos.

Es importante asistir a los congresos de proteas, porque es la mejor instancia para reunir a investigadores, comercializadores y productores e intercambiar experiencias con ellos y establecer contactos.

8. Resultados adicionales:

9. Material Recopilado: (Anexo 1)

Tipo de Material	Nº Correlativo (si es necesario)	Caracterización (título)
Programa de la Conferencia de IPA	1	Program and Handbook de IPA
CD	2	Presentación IPA de Joanna Srhoj

10. Aspectos Administrativos

10.1. Organización previa al inicio de la actividad de formación

a. Apoyo de la Entidad Patrocinante

☒ X ☐ bueno ☐ regular ☐ malo

Fue una situación difícil, dado que la posibilidad de postular se dio pocos días antes de la actividad

b. Información recibida por parte de FIA para realizar la Postulación

☒ X ☐ detallada ☐ aceptable ☐ deficiente

Instrucciones claras

c. Sistema de Postulación al Programa de Formación de FIA

☒ adecuado ☐ aceptable ☐ deficiente

d. Apoyo de FIA en la realización de los trámites de viaje (pasajes, seguros, otros)

☒ bueno ☐ regular ☐ malo

(Justificar)

e. Recomendaciones (señalar aquellas recomendaciones que puedan aportar a mejorar los aspectos administrativos antes indicados)

Se presenta el problema de que las conferencias de Proteas son realizadas generalmente en marzo o abril, y FIA financia actividades posteriores a esa fecha. En este caso hubo una excepción y por eso se postuló a última hora, pero sería ideal que a futuro se organice mejor, por ejemplo que se pueda postular en diciembre.

10.2. Organización durante la actividad (indicar con cruces)

Ítem	Bueno	Regular	Malo
Recepción en país o región de destino según lo programado	x		
Cumplimiento de reserva en hoteles	x		
Cumplimiento del programa y horarios según lo establecido por la entidad organizadora	x		
Facilidad en el acceso al transporte	x		
Estimación de los costos programados para toda la actividad	x		

En caso de existir un ítem Malo o Regular, señalar los problemas enfrentados durante el desarrollo de la actividad de formación, la forma como fueron abordados y las sugerencias que puedan aportar a mejorar los aspectos organizacionales de las actividades de formación a futuro.



11. Programa de Actividades de Difusión

11.1 Descripción de la actividad de difusión:

La actividad de difusión consistió en dictar en conjunto con la Sra. Cristina Gregorzyk de Flores del Fynbos, quien también asistió a la Conferencia, dos charlas de tipo expositivas con el apoyo de diapositivas que fueron proyectadas en datashow, además a cada asistente se le entregó material visual que consistió en un resumen de la exposición y una copia de las exposiciones que hicieron cada uno de los representantes de cada país que asistió a la Conferencia de Protea indicando la realidad del cultivo de cada país. La exposición se presenta en un CD que se adjunta y el material visual se muestra en el anexo 2. Se realizó una charla en la Facultad de Agronomía de la Universidad Católica de Santiago el día 3 de junio y la otra charla se realizó en la Facultad de Ciencias Agrarias de la Universidad de Talca el día 4 de junio.

El objetivo principal de la charla es dar a conocer a la comunidad agrícola y a las personas que estén interesadas en el tema lo aprendido durante las visitas, los temas tratados en la Conferencia, la realidad del cultivo de Proteáceas en otros países del mundo y los contactos hechos durante la estadía en el extranjero.

La charla no tuvo costo y fue abierta. Se enviaron invitaciones a través de la Red de flores y a productores, profesionales, técnicos y académicos pertenecientes a la base de datos que disponen los proyectos de la Universidad de Talca y Flores del Fynbos.

En la primera parte de la charla expuso la Sra. Flavia Schiappacasse, Profesora de la Facultad de Ciencias Agrarias de la Universidad de Talca que asistió a la conferencia, y los temas tratados fueron los siguientes:

Australia

-Antecedentes generales de las Proteáceas: Se expuso sobre el origen de las Proteáceas (países desde donde son originarias), países donde actualmente se cultivan comercialmente estas especies, etc.

- Antecedentes generales de las Proteáceas y otros follajes nativos en Australia: Se comentó sobre el clima donde se cultivan las especies, la superficie estimada de cultivo de follaje nativo y Proteáceas, se comentó de la existencia de una Asociación de productores de Protea y follaje australiano. También se habló de la tendencia actual del cultivo.

- Problemas de la industria: Se expusieron los principales problemas de la industria de flores y follaje australiano que se conoce como 'Wildflower' como: que es pequeña respecto al resto de las flores tradicionales, no existe un organismo que reúna información de mercado y producción de



flora silvestre y el transporte al principal mercado que es Japón es de costo muy alto. Además, ha ido disminuyendo el financiamiento a la investigación.

- Producción de Proteáceas: Se expuso la realidad de los productores de 'Wildflower' en Australia como que la mayoría son pequeños productores y la rentabilidad no es muy alta.
- También se habló de la existencia de un centro de floricultura nativa ubicado en la Universidad de Queensland.

Nueva Zelanda

- Antecedentes generales de la zona de Auckland principalmente el clima.
- Antecedentes generales del cultivo de Proteáceas y otras flores y follaje decorativo de Nueva Zelanda: Se comentó de la existencia de una asociación de productores de Protea y follaje de Nueva Zelanda, de la calidad del follaje, de los mercados de destino.
- Visitas realizadas en Auckland: Se comentó de la visita realizada al Jardín Botánico, de la visita al vivero de KingFlora, de la En esta sección se deberán describir detalladamente las actividades de difusión realizadas, tales como publicaciones, charlas, seminarios u otras actividades similares, comparando con el programa establecido inicialmente en la propuesta. Se deberá también describir y adjuntar el material de difusión preparado y/o distribuido en dichas actividades.

En la segunda parte de la charla expuso la Sra. Cristina Gregorzyk productora de la empresa Flores del Fynbos ubicada en la comuna de San Antonio quien asistió a la Conferencia, y los temas tratados fueron los siguientes:

- Vivero Proteaflora: Se detalló el proceso productivo desde que se cortan las estacas desde la planta madre hasta la obtención de las plántulas.
- Melbourne International Flower and Garden Show: Con el apoyo de diapositivas se mostró la exposición con los diferentes arreglos florales en los que se pueden utilizar las flores y follaje de las Proteáceas mezcladas con otras flores.

A la charla asistieron alumnos, investigadores, académicos, agricultores y profesional. Se adjunta en el anexo 3 sólo la lista de asistentes a la charla de la Universidad de Talca, ya que la lista de asistentes a la charla que se dictó en la Universidad Católica en Santiago la presentó la Sra. Cristina Gregorzyk.

11.2. Especificar el grado de éxito de las actividades propuestas:

En la charla dictada en la Universidad Católica asistieron alrededor de 50 personas y en la charla realizada en la Universidad Talca asistieron alrededor de 12 personas, por lo que se puede decir que el éxito de la actividad fue medianamente bueno.

11.3. Indicar si se entregó algún material a los asistentes:

Como se indicó anteriormente se entregó a los asistentes de la charla un resumen de lo expuesto en las diapositivas y un resumen con las diferentes exposiciones realizadas en la Conferencia en Australia donde se comentaba la realidad del cultivo en cada país (Anexo 2).

Tipo de material	Nombre o identificación	Idioma	Cantidad
Visual	Actualización de la investigación internacional y manejo productivo de proteáceas en Melbourne y Auckland	español	1
visual	Resumen de las exposiciones relacionadas con la realidad del cultivo de Proteáceas en algunos países donde se cultivan estas plantas	inglés	1
CD	Charla de difusión	español	1



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ANEXO 1

MATERIAL RECOPILADO

Competing Cooperating and Caring

INTERNATIONAL PROTEA ASSOCIATION

12th International Protea
Association Conference
and
7th International Protea
Working Group Symposium



PROGRAM AND HANDBOOK

3 – 7 April 2004

Grand Hyatt

Melbourne

Melbourne Australia

CONTENTS

Welcome from the IPA Conference Convenor	3
Welcome from the Chairman, IPA	3
IPA Conference Committee	3
Scientific Committee	3
Conference Supporters	4
Program in Detail	4-8
Poster Displays	9
Social Diary	9
General Information	10-11
Monday 5 April	
Opening Address	12
Session 1 – Breeding and Propagation	13-17
Session 2 – Market Satisfaction	18-21
Session 3 – International Market Perspectives and Trends	22-23
Tuesday 6 April	
Session 4 – Visit to Proteaflora	24
Session 5 – Visit to Tesselaar Bulbs & Flowers	25
Wednesday 7 April	
Opening Address	26
Session 6 – Industry Communities	27-32
Session 7 – Development of New Products	33-37
Session 8 – Production Innovations	38-43
Session 9 – Farm Management Systems	44-48
Posters	49-57
Notes	58-61

WELCOME FROM THE IPA CONFERENCE CONVENOR

On behalf of the Organising Committee and members of Wildflowers Australia (formerly Australian Flora & Protea Growers Association) a warm welcome is extended to you all. We believe that the program will provide the most recent information about proteaceae production in a forum which will enable thought, discussion and exchange to take place. The social program will allow renewal of old friendships and the formation of new ones.

We hope you enjoy the conference and fully utilize all the opportunities which arise.

Alison George

WELCOME FROM THE CHAIRMAN, IPA

Welcome to the 12th International Protea Association Conference. For the first time since the inaugural meeting held here in 1981, we are back in Melbourne.

It is the third time the IPA HAS COME TO Australia and it is fitting that we thank all those who have come before us for laying the groundwork for international co-operation and discussion.

Although there has been quite a bit of progress, there is still a long way to go and much to learn. It is for this purpose that we are all meeting here; to learn what is new on the research front and to see how this knowledge can be applied on the ground.

My sincere thanks to the Organising Committee under Alison George here in Australia, for their hard work over the last two years to make it possible for us to get together again.

Enjoy the conference.

Wynke Middelmann

IPA CONFERENCE COMMITTEE

- Alison George, *Conference Chair / Galeforce Protea*
- Ian Treloar, *Hawks View Wildflowers*
- Kylie Treble, *Green Companions Plants, Flowers and Foliage*
- Lee Carmody, *Waratah Wildflowers*
- Deanne Joyce Daws
- Russell Dawe, *Research Master / Katabanuit Otway Wildflowers*
- Audrey Gerber, *Department of Primary Industries, Victoria*
- Brian Harris, *Collina Export*
- Martin Sayers, *Marindale Proteas*

CONFERENCE MANAGER

Marg Scarlett Conference Strategy Pty Ltd

CONFIDENTIAL COMMITTEE: 7th IPWG Symposium in cooperation with ISHS

- Audrey Gerber, *Department of Primary Industries, Victoria*
- Robyn McConchie, *University of New South Wales, Sydney*
- Nathy Offord, *Mount Annan Botanic Garden*
- Christina Gollnow, *NSW Agriculture*
- Yiijun Yan, *University of Western Australia, Perth*
- Margaret Johnston, *Centre for Native Floriculture*
- Ben Leonhardt, *University of Hawaii*
- Amelia Martyn, *University of New South Wales, Sydney*

CONFERENCE SUPPORTERS

- | | |
|---|--------------------------------|
| Chateau Tahbilk Wines | Felco Australia |
| Flowers Victoria | Horticulture Australia Limited |
| Protea Flora | Proteaflora |
| Tesselaars Bulbs & Flowers | |
| Department of Innovation, Industry and Regional Development | |
| Rural Industries Research and Development Corporation | |

Special thanks to the following properties for their support of the Pre & Post Conference Tours:

- Harris Park, Robertson
- Crooby Cottage Wildflowers, Falls Creek
- Barlagen's Plantation, Moe South
- Wealand's Plantation, Lang Lang

PROGRAM IN DETAIL

SATURDAY 3 APRIL 2004	
Grand Hyatt Level 8 5.00pm – 6.00pm	Registration
6.00pm	Coach departs Grand Hyatt Melbourne for MIFGS
6.30pm – 8.30pm	Welcome Reception Melbourne International Flower and Garden Show Royal Exhibition Buildings and Carlton Gardens

SUNDAY 4 APRIL 2004	
Grand Hyatt Level 8 10.00am – 11.00am	Registration
10.00pm – 5.00pm	Day at leisure to revisit the Melbourne International Flower and Garden Show Collect tickets from the registration desk
3.00pm – 5.00pm	IPA Board Meeting

MONDAY 5 APRIL 2004		QUALITY
Grand Hyatt Level 8 8.00am-5.00pm	Registration	
Mayfair Ballroom	CONFERENCE OPENING	
9.00am-10.00am	CHAIR: Allison George, Wildflowers Australia, Conference Convenor	
10.00am-9.05m	Opening Remarks: Allison George, Wildflowers Australia, Conference Convenor	
9.05am-9.20am	Conference Opening Address: John Landy, AC, MBE., Governor of Victoria	
9.20am-9.30am	Welcome from Maryke Middelman, IPA Chairman	
9.30am-10.00am	Monday Opening Address: Evolution of the Australian Proteaceae industry. Dennis Tricks, Longford Flowers	
10.00am-10.30am	Morning Tea / Coffee Break and Poster Viewing	
10.30am-12.00pm	Session 1 - BREEDING AND PROPAGATION	
	CHAIR: Ken Leonhardt <i>Chairman IPWG</i>	
10.30 - 10.50am	The in-vitro organogenetic capacities of two genera of proteaceae Alain Poupet, Meline Thillerot, Maryse Montarone	
10.50 - 11.10am	Searching for sex determining DNA markers and constructing phylogenetic relationships among selected Leucadendron species Guijun Yan, Fucheng Shan, Ben Croxford and Ralph Sedgley	
11.10 - 11.30am	Micropropagation of Leucadendron Ben Croxford, Guijun Yan and Ralph Sedgley	
11.30 - 11.50am	The rooting of <i>Leucospermum</i> 'High Gold' stem cuttings J.A. Rodriguez Perez, A.M. De Leon-Hernandez, M.C. Vera-Batista,	
11.50 - 12.00pm	Questions and Answers	
12.00pm-1.30pm	LUNCH	
1.30pm-3.00pm	Session 2 - MARKET SATISFACTION	
	CHAIR: Adrian Parsons <i>Chairman AFEC</i>	
1.30 - 1.55pm	Post harvest trends and requirements. Robyn McConchie	
1.55 - 2.15pm	Post harvest management of Waratahs. Ross Worrall	
2.15 - 3.15pm	Markets and the operations of competitive forces. Martin Kneebone	
3.15pm-3.45pm	Afternoon Tea / Coffee Break and poster viewing	
3.45pm-5.15pm	Session 3 - INTERNATIONAL MARKET PERSPECTIVES AND TRENDS	
	CHAIR: Russell Dawe, <i>Secretary Wildflowers Australia</i>	
	Updates by international delegates	
	Warning!! Get friendly. Maryke Middelman	
5.15pm-7.00pm	IPWG Meeting	
	EVENING FREE	

TUESDAY 6 APRIL 2004		PRACTICUM
Field Trip, Conference Dinner and Annual General Meeting		
8.00am	Coaches depart Grand Hyatt driveway in Russell Street for Field Trip	
10.00 - 12.00noon	Session 4 - VISIT TO PROTEAFLORA 240 Old Emerald Road, Monbulk	
	CHAIR: Dame Joyce Daws	
	HOST: Mr David Matthews	
	The visit will include a 30 minute overview by David Matthews, morning tea and a nursery tour.	
12.00noon	Coaches depart from Protea Flora for Silvan Reservoir	
12.30pm-1.30pm	Box Lunch at Silvan Reservoir Wine sponsored by: Chateau Tahbilk	
2.30 - 4.30pm	Session 5 - VISIT TO TESSELAAR BULBS & FLOWERS 357 Monbulk Road, Silvan	
	CHAIR: Allison George	
	HOST: Mr Kees and Henk Tesselaar	
	The visit will include an overview of the operation, afternoon tea and tour.	
4.30pm	Coaches depart for Clover Cottage 54 Manuka Road, Berwick	
5.30pm	IPA Annual General Meeting at Clover Cottage	
7.00pm	Evening Dinner at Clover Cottage.	
10.30pm	Coaches depart for Grand Hyatt Hotel	

WEDNESDAY 7 APRIL 2004 INNOVATION	
Grand Hyatt Level 8 8.00am-8.30am	Registration
8.30 – 9.00	Wednesday Opening Address: Adoption of innovation and change Carolyn Cameron, Manager Practice Change Regional Services and Agricultural Division DPI Victoria
9.00am-10.30am	Session 6 - INDUSTRY COMMUNITIES
	CHAIR: Robyn McConchie, UniNSW Sydney
9.00 - 9.15am	Towards a peak body for the Australian Wildflower Industry Russell Dawe
9.15 – 9.30am	Case study 1: NSW Wildflower industry Bettina Gollnow
9.30 – 9.45am	Case Study 2: NZ Wildflower industry Chris Wright
9.45 – 10.00am	Case study 3: Making the Leap from Weekend Grower to Full Time Grower (Including Comments on R&D in South Africa). Hans Hettasch
10.00 – 10.15am	Industry R&D needs Chris Horsman
10.15 – 10.30am	Questions and Answers
10.30am-11.00am	Morning Tea / Coffee Break and poster viewing
11.00am-12.30pm	Session 7 - DEVELOPMENT OF NEW PRODUCTS
	CHAIR: Cathy Offord, Mount Annan Botanic Garden
11.00 – 11.20am	Economically and environmentally sustainable native floriculture with a consumer focus? Daryl Joyce
11.20 – 11.40am	Private venture product development: Concepts into practice Caroline O'Brien and Hans Hettasch
11.40 – 12.00noon	Breeding and commercialisation of new <i>Leucadendron</i> varieties Ralph Sedgley, Ben Croxford and Guijun Yan
12.00 – 12.20pm	Native cut foliage production using proteaceae species. Joanna Srhoj
12.20 – 12.30pm	Questions and Answers
12.30pm-1.30pm	LUNCH

WEDNESDAY 7 APRIL 2004 INNOVATION	
1.30pm-3.00pm	Session 8 - PRODUCTION INNOVATIONS
	CHAIR: Margaret Johnston, Centre for Native Floriculture
1.30 – 1.40pm	<i>Leucadendrons</i> are short-day plants: A preliminary report H.B. Hettasch and G. Jacobs
1.40 – 2.00pm	Effect of shade on bract browning of waratahs (<i>Telopea spp.</i>) Amelia Martyn, Robyn McConchie and Cathy Offord
2.00 - -2.20pm	Fertiliser requirements of the NSW waratah, <i>Telopea speciosissima</i> . R. Worrall and S. Parks
2.20 – 2.40pm	Biological control in Proteaceae-an effort to solve some problems M.J. Leandro, M. Oliveira
2.40 – 2.50pm	Gibberellic Acid spray increases size of <i>Protea</i> 'Pink Ice' flowers. J. Ben-Jaacov
2.50 – 3.00pm	Questions and Answers
3.00pm – 3.30pm	Afternoon Tea / Coffee Break and poster viewing
3.30pm-5.30pm	Session 9 - FARM MANAGEMENT SYSTEMS
	CHAIR: Guijun Yan, University of Western Australia
3.30 – 3.50pm	Farm management records Robert Middelmann
3.50 – 4.10pm	Interactive budgeting programmes Audrey Gerber, Jessica Connor and Lindsay Trapnell
4.10 – 4.30pm	Improving flower production profits with good records and performance analysis Gerry Parlevliet
4.30 – 4.50pm	Profit share as a management tool for competing, cooperating and caring Ralph Jordan
4.50 – 5.15pm	Questions and Answers
5.15pm-5.30pm	Summation and glimpses into the future of the industry Daryl Joyce
6.30pm-11.00pm	CONFERENCE DINNER AT GRAND HYATT, MELBOURNE

POSTERS		Coordinator: <i>Amelia Martyn, UniNSW Sydney</i>
1.	Development of a protocol to assess phytophthora tolerance in Leucadendron using excised stems Guijun Yan, Ben Croxford and Ralph Sedgley	
2.	Interspecific hybridization and embryo rescue of Leucadendron Hui Liu, Guijun Yan, Ralph Sedgley, Ben Croxford	
3.	The inheritance and variation of chloroplast DNA in Leucadendron (Proteaceae) M. Pharmawati, Guijun Yan and Ralph Sedgley	
4.	Colletotrichum diseases of Proteaceae-linking pathogenicity and histology C.M. Lubbe, S. Denman, S.C. Lamprecht, J.Z. Groenewald and P.W. Crous	
5.	Characterisation of Colletotrichum species associated with diseases of Proteaceae C.M. Lubbe, S. Denman, S.C. Lamprecht, J.Z. Groenewald and P.W. Crous	
6.	Pathogenic fungi and bacteria affecting protea plantations in Chile Herrera, R; Obreque, M., Vico, V., Rebolledo, P., Lolas, M., Schiappacasse, F., and Sandoval, C.	
7.	International Proteaceae cultivar registration J. Sadie	
8.	Nectar of Proteaceae C. Devauchelle, B. Limier and M.V. Carrera	

SOCIAL DIARY

Saturday 3 April
Welcome Reception
MIFGS

6.30pm-8.30pm

A casual and relaxed opportunity to meet with friends and colleagues. (Included in full registration fees) Additional tickets can be purchased at a cost of \$75.00pp.

Tuesday 6 April
Dinner at Clover Cottage

7.00pm-10.30pm

Berwick (Included in full registration fees)
Additional tickets can be purchased at a cost of \$100.00pp.

Wednesday 7 April
IPA Conference Dinner
"Lumina" Grand Hyatt Melbourne

7.00pm-11.00pm

(Included in full registration fees) A limited number of additional tickets can be purchased at the registration desk at a cost of \$120.00pp. Ticket sales will close Monday at 1.00pm.

Accompanying Persons Program

Should you have any queries please contact Marg Scarlett at the registration desk.

GENERAL INFORMATION

Venue

Grand Hyatt Melbourne
123 Collins Street
Melbourne Victoria Australia 3000

Telephone: 03 9657 1234

Facsimile: 03 9653 4685

Registration Desk – Location and Hours

The registration desk, located on Level 8, will be open as follows:

Saturday	3 April	5.00pm to 6.00pm
Sunday	4 April	10.00am to 11.00am and 4.00pm to 5.00pm
Monday	5 April	8.00am to 5.00pm
Tuesday	6 April	7.30am to 8.00am
Wednesday	7 April	8.00am to 5.00pm

Some Useful Telephone and Facsimile Numbers

Grand Hyatt Hotel	Tel: 03 9657 1234	Fax: 03 9650 3491
Pacific International Apartments	Tel: 03 9631 4444	Fax: 03 9631 4400
The Victoria Hotel	Tel: 03 9653 0441	Fax: 03 9678 9678

Name Badges

Your name badge is your entry into all sessions and catering areas. Please wear it at all times. All tickets ordered for social functions can be found at the back of your name tag. Tickets must be presented at all social functions.

People with Special Needs

Every effort has been made to ensure people with special needs have been catered for. Should you require any specific assistance please contact staff at the registration desk to enable us to make your attendance at IPA a pleasant and comfortable experience. If you have pre ordered a special diet, please ask catering staff for your meal.

Car Parking

The Grand Hyatt Melbourne provides valet parking for in-house guests: the cost is \$23.00 per day. Public parking ranges from \$9.00 per hour to a maximum of \$30.00 per day. Early bird parking is available at \$11.00 per day.

Lost Property

Please report all lost and found items to the registration desk.

What To Wear

Smart, casual clothes are suitable for all sessions. The attire for the welcome reception is smart casual or business attire.

Official Language

The official language for the conference is English. No translation facilities will be available.

Messages

Messages can be collected and left on the delegate message board located near the registration desk. Please check the board upon passing.

Currency and Banking

Australian currency is decimal with units in dollars and cents. All major international banks or their agencies have branches in Melbourne. Normal banking hours are Monday – Thursday 10.00am – 4.00pm and 5.00pm closing on Friday. Most banks are closed on weekends and public holidays. All major credit cards are commonly accepted.

Electricity Supply

Throughout Australia, mains electricity is supplied at 240volts 50 Hz AC. The flat 3-pin connecting plugs are different from those in other countries. Some hotels provide converters or transformers for 110V equipment.

Tipping

Tipping up to 10% is normally accepted in Australia for outstanding service.

Speakers Preparation

Please ensure that you are in the room at least one hour before your presentation or earlier to ensure the audio visual technician has sufficient time to load your presentation (PC Format).

Speakers are invited to relax and preview their presentations, prior to their session. Audio-visual equipment and a technician will be available to assist. Contact staff at the registration desk for more information.

Restaurants

The conference venue has two restaurants on the lower level. In addition there is a food hall located in the Crown Casino Complex and multiple restaurants along Southbank.

MORE INFORMATION

Contact Marg Scarlett, IPA Conference Manager at the registration desk.

MONDAY**Opening Address:**

EVOLUTION OF THE AUSTRALIAN PROTEACEAE INDUSTRY

Dennis Tricks, Longford Flowers

SESSION 1

BREEDING AND PROPAGATION

10.30am-12.00pm	Session 1 BREEDING AND PROPAGATION
	Chair: Ken Leonhardt , <i>Chairman IPWG</i>
10.30 – 10.50am	The in-vitro organogenetic capacities of two genera of Proteaceae Alain Poupet , Meline Thillerot , Maryse Montarone
10.50 – 11.10am	Searching for sex determining DNA markers and constructing phylogenetic relationships among selected Leucadendron species Guijun Yan , Fucheng Shan , Ben Croxford and Ralph Sedgley
11.10 – 11.30am	Micropropagation of Leucadendron Ben Croxford , Guijun Yan and Ralph Sedgley
11.30 – 11.50am	The rooting of <i>Leucospermum</i> 'High Gold' stem cuttings J.A. Rodriguez Perez , A.M. De Leon-Hernandez , M.C. Vera-Batista ,
11.50 – 12.00pm	Questions and Answers

Glossary - Breeding and Propagation

acclimatisation –	to adapt to new environments
axillary buds –	lateral buds or buds at the base of petiole
basal –	the base or bottom of a shoot
callogenesis –	plant regeneration from callus
Clonex Purple –	commercially available root stimulating plant hormone (IBA) in a gel form
deflask –	transfer the plantlets from tissue culture to the glasshouse or outside environment
explant –	tissue taken from its original site and transferred to an artificial medium for growth
genotype –	the genetic makeup of an individual
Growool –	a kind of water absorbent rockwool made in Australia and is used as a soilless growing medium
IBA –	indole-3-butyric acid, root stimulating hormone
In vitro –	outside the living body; under laboratory conditions or in an artificial environment
organogenetic –	to regenerate new plants or new organs
phylogenetic relationships –	the relationships reflected by the family history during evolution
RAPD –	random amplified polymorphic DNA, a polymerase chain reaction (PCR) based DNA amplification method
subculture –	subsequent tissue culture after initiation
terminal –	the top or tip of a shoot

THE IN-VITRO ORGANOGENETIC CAPACITIES OF TWO GENERA OF PROTEACEAE

Alain Poupet*, Meline Thillerot**, Maryse Montarone*

*INRA-URIH route des Colles Sophia antipolis 06410 BIOT FRANCE

** Faculté des sciences et Techniques Saint Jérôme 13397 MARSEILLE FRANCE

The in-vitro organogenetic capacities of two genera of Proteaceae (*Leucospermum* cv. High Gold, *Protea* cvs Venus, *cynaroides* and Cardinal) have been evaluated in the aim of fast propagation, in the case of *Leucospermum* a complete protocol has been developed including acclimatisation : the method is promising at the qualitative level despite a low yield; a differential response is observed among the *Protea* cultivars : in cultivars Venus and *cynaroides* the stages of introduction and multiplication based on the natural (basic branching) potential, are defined. In cv Cardinal, we can observe a good initial growth of the tips, their survival during six subcultures and a slow development of some axillary buds. The main remaining problems pointed out in the literature have been worked out, i.e high rate of initial contaminations or necrosis of the explants induced by the browning or oxidation of the media. Further work is to be continued in two ways : The reducing of the residual callogenesis (cv *Protea*) in spite of the use of weak mineral media. The improvement of the final yield (*Leucospermum*) or setting up of the rooting stage (cultivars of *protea*) the cv Cardinal appearing to be the most difficult to control in-vitro.

NOTES

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Sur culture de los germes successivement

SEARCHING FOR SEX DETERMINING DNA MARKERS AND CONSTRUCTING
PHYLOGENETIC RELATIONSHIPS AMONG SELECTED LEUCADENDRON SPECIES

Guijun Yan, Fucheng Shan, Ben Croxford, & Ralph Sedgley

School of Plant Biology, Faculty of Natural and Agricultural Sciences, The University of Western
Australia, Crawly, WA 6009, Australia

All *Leucadendron* species described so far are strictly dioecious, ie. there are male and female individuals. Our earlier studies in sex determination suggested a single gene controlling system as most families segregate in a 1:1 ratio. Bulk-segregate DNA analysis were attempted to search for DNA markers linked to the sex determination gene. Sixty-one genotypes from 11 species were examined using 45 RAPD primers. Twelve DNA markers were identified in *L. laurosum*, *L. procerum*, *L. eucalyptifolium*, *L. discolor* and *L. salignum* to be linked to sex. At least four markers were further verified using three individual males and three individual females. More samples were taken to check the reliability of the markers before they can be used in the breeding program.

As part of the molecular research, phylogenetic relationships among 11 *Leucadendron* species were also constructed based on the DNA markers. The molecular relationship is generally consistent with the known relationship of the species and also in agreement with our hybridisation result – the closer the relationship, the easier to cross between them. For example, *L. gandogerii*, *L. laurosum*, *L. spissifolium* have a close relationship and many hybrids are produced among them. They are otherwise very far related to *L. rubrum* and it has so far been proved very difficult to produce hybrids between the group and *L. rubrum*.

NOTES

26 Nov. no tubic. cream. sev
Date of sex pref. test 4

MICROPROPAGATION OF LEUCADENDRON

1997 produced - 100% success 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 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POST HARVEST TRENDS AND REQUIREMENTS.

Dr. R. McConchie, Senior Lecturer

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Australia continues to export predominantly wildflowers. With increasing pressure from other countries, floral products must be of premium quality for Australia to remain competitive in the global market. To the final consumer, this usually means at least a 7 day vase life. In addition to consideration of the inherent vase life qualities of particular species of foliage and flowers, growers and wholesalers are continually seeking improved postharvest care and handling options to give them the advantage in quality.

In this presentation recent developments in postharvest treatments such as glucose pulsing and application of nitric oxide will be discussed as well as new commercial grower-based treatments. Some of these treatments have resulted in significantly less protea leaf blackening as well improved flower quality. In addition to pre-shipping floral treatments, consideration must also be given to maintenance of the cool chain, appropriate packaging and time to market. Application to the industry of recent innovations in packaging and transport, especially for export, will be discussed.

NOTES

Check fl: Se uso STS
muy sens al etil.
- se he usado en comer. en
wax y gervilles
Dicen q' afectan solo de los hijos
de 4 años, los de p' de los 10.
o sacarlos?
1-MCP 10ml/L 12h
a 20°C
Cajas: poner PE para ↓ por el
x comier: a que 1 L 1 L 1 L
Sipro cap de 100ml
Breadraft cooling developed: US → Michael Reid
Presal to 20°C
"Dynamic control system" parece j' es q' a. a. a. a. a.
dentro de la caja, desarrollo de H₂O. no se usa Aus.
Hawaii: un poco de xitosa
⇒ "Sugar alcohol" i en stem, close to G

consistency

POST HARVEST HANDLING OF NSW WARATAH, *TELOPEA SPECIOSISSIMA* – PAST PRESENT AND FUTURE.

Dr. R. Worrall, Senior Research Horticulturist

NSW Agriculture, Gosford Horticultural Institute (GHI), NSW Agriculture, LB 26 Gosford 2250
NSW

Ph. (02) 43481900, Fax (02) 43481910 (ross.worrall@agric.nsw.gov.au)

Seedling waratahs (*Telopea speciosissima*) normally have a vase life of about 12 days at standard conditions, although some clones may exceed 17 days. The most common reason for a reduction in vase life during storage appears to be loss of water, especially during transport. Plastic box liners are effective protection against water loss, and consequently a reduction in vase life. However treatments (eg HQS) that are effective in preventing stem plugging do not appear to be effective in extending vase life. Sugar as a pulse or in the vase solution also is not effective for reasons that will be discussed. Waratahs do not normally produce high levels of ethylene, except towards the end of their vase life. However they are sensitive to high levels of external ethylene. STS (silver thiosulphate) and 1-MCP (1-methylcyclopropene) may protect against high levels of exogenous ethylene, although they appear to have little effect on vase life at lower levels. STS may also reduce vase life in the absence of ethylene, although it is effective in reducing stem blockage. Nitric oxide (NO) has been reported to marginally extend the vase life of waratahs in the presence of ethylene, although this work needs to be confirmed. Stage of harvest and storage temperatures also have a large effect on vase life, the consequences of which will be discussed. Future possible directions in post harvest research will also be discussed.

NOTES

Se usa STS
1 dia mas o mas.
1-MCP 10ml/L 12h
a 20°C
STS parece j' ha problem bloques del haz vascular.
mucho sacarosa → sacar. dentro

Martin Kneebone, Managing Director of RETAILworks Pty Ltd

Martin Kneebone has a detailed understanding of Australasian retailing and the related supply systems as a result of working on both sides of the Tasman over the past twenty years. He has operated in both the retail and supply sectors, including working for Coles Myer at the General Manager level for a number of years. In 1996 Martin set up RETAILworks where he has been engaged in projects with specialist retailers and primary producers, and has also conducted many consumer studies and analyses of a wide range of product categories. He has developed a reputation for his ability to draw out useful and workable commercial applications from his reviews and analyses.

Martin has developed a program with the AFFA New Industry Development Program looking at Agribusiness marketing. The program, focussing on agribusiness examples, is aimed at development of knowledge and skills for participants to more effectively manage their marketing and provide practical guidance on developing marketing strategies. This presentation will draw on this program and it is anticipated the content of will be of value to all sectors of the cut flower supply chain.

NOTES

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

INTERNATIONAL MARKET PERSPECTIVES AND TRENDS

Chair: **Russell Dawe**, *Secretary Wildflowers Australia*

3.45pm-5.15pm	Session 3 – International Market Perspectives and Trends
	Chair: Russell Dawe , <i>Secretary Wildflowers Australia</i>
	Updates by international delegates
	Warning!! Get friendly. Maryke Middelmann

WARNING!! GET FRIENDLY

Maryke Middelmann,

SAPPEX, Private Bag X10, Botrivier 7185, South Africa

Tel. +27 28 284 9745 e-mail: sappex@hermanus.co.za

A report on alleged sugar bird poisoning by the flower industry in South Africa that appeared in a birders magazine caused a furore in the bird fraternity in South Africa. News spread far and wide via a birders website, with adverse reaction from both local and overseas bird lovers who threatened boycotts of South African flowers. The local press picked up the story and ran with it, creating the impression that the Protea industry may be responsible for killing tens, or even hundreds of thousands of birds.

The article could potentially cause immeasurable harm to the Industry via buyer resistance both locally and on our overseas markets, but it also highlighted the need for environmentally agricultural practises, not only for protea farmers, but for everyone involved in agriculture.

How did we cope with the allegation and what lessons should be learned?

NOTES

Never underestimate the
importance of 'clean' environment

2 Aus into pens and in mallee - carpenteries

Waller's
Workers

Tuesday - Session 4

VISIT TO PROTEAFLORA

10.00 - 12.00noon

Session 4 - VISIT TO PROTEAFLORA

Chair: Dame Joyce Daws

— morning tea

A. Proteaflora

Background

Proteaflora is a wholesale nursery providing first quality Proteaceae to Australian nurseries, garden centres and cut flower growers both in Australia and overseas. Proteaflora was founded in 1974 by the late Peter Mathews, to supply his own flower plantation with Proteas. He saw the potential of Proteas as a major cut flower and nursery crop, capable of being developed in the same way other horticultural flowers had been. Until this time there had been little breeding. Most flower picking was from the wild. Proteas were not well understood as a nursery crop.

Nursery

Proteaflora is now run by brothers David and Andrew Mathews and wives Isle and Sue. From our home in Victoria's Dandenong Ranges, we have become the dominant Protea nursery in Australia. Our location gives us the advantages of easy access to our Melbourne metropolitan market, adequate rainfall and sunshine, access to key raw materials and good, reliable staff. We have the crucial benefit of a freight transport system that ensures our plants are delivered in top condition, on time, to our customers locally, interstate and overseas.

Our breeding and selection program has resulted in a superior selection of Proteas for gardens, commercial landscapes and cut flowers. Possibly our best known release is 'Pink Ice'. Our nursery covers three hectares, with a staff of around twenty, and produces half a million plants annually. As well as Australia, we sell into developing markets in Japan, Italy, Portugal, Spain and USA. Our main genera grown are Protea, Telopea, Banksia, Leucadendron, Leucospermum and Serruria.

Quality Assurance

Proteaflora offers a reliable supply of plants produced using systems that reflect world best practice. Our nursery and administration meet the highest plant quality and management standards. In the early 1990s we implemented a continuous improvement program and in 1996 we attained certification to international management standard ISO9002. Our nursery production systems and environmental management are also accredited under the Australian Nursery Accreditation Program, NIASA. All aspects of the nursery are externally audited annually to maintain our accreditation to these standards.

Contact details:

E-mail: protea@protea.com.au

We welcome enquiries but an immediate reply is not always possible. We will give our considered reply as early as we can.

Postal: Proteaflora Nursery Pty Ltd
PO Box 252
MONBULK VIC 3793
Australia

Phone: Australia International
(03) 9756 7233 +61 3 9756 7233

Fax: Australia International
(03) 9756 6948 +61 3 9756 6948

VISIT TO TESSELAARS

2.30 - 4.30pm Session 5 - VISIT TO TESSELAARS

Chair: **Alison George**
- afternoon tea

B. Tesselaars.

Tesselaar's offer more than 60 years experience in horticulture, growing, selling and distributing bulbs and flowers across Australia. Mother nature herself created the greatest gift of all time --- **flowers**. Tesselaar's have assisted nature a little and together with the latest technology and expertise, we grow some of Australia's finest flowers.

Continuous performance appraisals in paddocks and gardens.

We're fanatical about only offering exceptional quality flowers. For this reason we test many new bulbs and plants from overseas under Australian conditions every year. The result of our persistence is that we often reject 90% or more of the material but the 'survivors' are truly great!

We are also constantly re-evaluating existing products. Where ever we see them growing - in paddocks, gardens or even in a road side planting - we'll check their performance.

Building a bigger-than-ever team of experts for advice and world wide vigilance

We have built an external network of experts including David Glenn and Graham Cooke (both recognised as Australia's leading perennial authorities), Frank Baguley (F&I Baguley) and other selected experts. We also have many experts on staff who give us the benefit of their advice and assistance in our product selection. For many of these people their favoured flower crop has become a 'hobby' (or, as their family might say, an "obsession".)

Hunting the world for inspiration, ideas and trends

We regularly travel to gardens and nurseries around the globe. As well as looking for flowers, we're also hunting for new ideas, trends and inspirations to share through our catalogues. It's a great part of our job. It's enlightening, stimulating and highly addictive!

Quality Flowers Australia wide

We are dedicated to providing excellent quality flowers and service, exclusively to our florist customers. These exclusive delivery services are brought to you via our Australia wide network that includes; our own farms in Victoria, our own refrigerated, long range distribution chain, our local couriers and wholesale distribution outlets in Melbourne, Brisbane and Perth.

This network enables us to give you the specialised delivery service you need to deliver top quality flowers to your customer.

Personal Service

Whilst supplying flowers to over 1000 Florists nation-wide, we make every effort to provide a very personal service to each customer, with every customer having a Tesselaar person responsible for ensuring that they get just the flowers that they need.

Guarantee

To back up this commitment we guarantee that all the flowers delivered, will be to the customers satisfaction.

Fixed Pricing

In the very competitive market that florists now work in, Price certainty is very important.

Tesselaar's do not expect their customers to guess at what the freight and packing costs will be, we quote you a delivered price on the spot and for customers with a fax we can send you a up to the minute availability list with delivered prices daily or as often as you choose.

WEDNESDAY

Opening address:

ADOPTION OF INNOVATION AND CHANGE

Carolyn Cameron.

Manager, Practice Change
DPI Victoria

As we move through a post industrial landscape, we are challenged to develop new ways to manage land and resources. In the past, Departments of Agriculture were focussed on technology transfer based on the diffusion theory. Now we work with communities to identify their needs and mesh those with the objectives of Government to deliver a package of practice change tools to address triple bottom line issues.

Practice change tools range from regulation backed up by legislation, economic mechanisms with the development of new markets such as in water pricing to voluntary processes for developing human and social capital with rural landholders.

In any given situation it is unlikely that a single approach will deliver the level of on-ground practice change required. Determining factors include regional, industry, institutional and community/farm context(s) that facilitate or frustrate the move towards practice change. Policy analysts engage with stakeholders, industries and the community to identify optimal approaches that provide both direction and room to manoeuvre.

Innovation can come into the picture from a government, community or landholder/producer perspective. Governments are working hard to devise effective practice change tools to further the triple bottom line outcomes of increasing economic productivity, developing resilient communities and maintaining a high quality natural resource base for the long term. Industries collaborate with researchers to identify and trial new opportunities and individual producers are at the ultimate coal face of innovation.

NOTES

- 1- imitating (eg. Cipro in version)
- 2- improvise
- 3-

E's cabinets p'dem - on page 200m

"rural landscape"

innovative person steps out of the box

↓ team

- sensitivity (we miss, other)
- planning (succession)
- novelty
- flexibility (p'dem)
- analysis (disfo)
- synthesis (put together things to make sense)
- complexity
- evaluation
- tolerance!
- enjoys absurdity (other)

"TRUCK WORKBENCH" 11
inventor for George Lewis

INDUSTRY COMMUNITIES.

9.00am-10.30am	Session 6 - INDUSTRY COMMUNITIES Chair: Robyn McConchie , <i>UniNSW Sydney</i>
9.00 - 9.15am	Towards a peak body for the Australian Wildflower Industry Russell Dawe
9.15 – 9.30am	Case study 1: NSW Wildflower industry Bettina Gollnow
9.30 – 9.45am	Case Study 2: NZ Wildflower industry Chris Wright
9.45 – 10.00am	Case study 3: Making the Leap from Weekend Grower to Full Time Grower (Including Comments on R&D in South Africa). Hans Hettasch
10.00 – 10.15am	Industry R&D needs Chris Horsman
10.15 – 10.30am	Questions and Answers

Glossary - Industry Communities.

AFPGA -	Australian Flora & Protea Growers Association
EPA -	Environment Protection Authority
HAL -	Horticulture Australia Ltd, an R&D corporation funding projects for many horticultural industries
NPWS -	National Parks and Wildlife Service
NZFEA -	New Zealand Flower Exporters Association
NZPFGA -	New Zealand Protea and Foliage Growers Association
RIRDC -	Rural Industries Research & Development Corporation. Federal funding body that matches industry generated funds to promote R&D
SAPPEX -	South African Protea Producers and Exporters
Wildflowers -	the generic term given to the wide range of flowers and foliage species native to Australia and southern Africa (protea, leucadendron, leucospermum etc). The wildflower industry is focussed on the plantation growing of this extensive range of flowers.
Wildflowers Australia Ltd -	a national industry association that facilitates the profitable production of wildflowers through industry development, promotion and research. Formerly known as "The Australian Flora and Protea Growers Association"
Wildflowers NSW -	peak body representing growers of flowers and foliage native to Australia and South Africa, in New South Wales, Australia
ynbos -	the generic term used for wildflowers of the South Western Cape of South Africa. Derived from the Dutch words "fijn", meaning fine and "bosch" meaning bush.
ARC -	Agricultural Research Council, the research arm of the Dept of Agriculture in South Africa.

TOWARDS A PEAK BODY FOR THE AUSTRALIAN WILDFLOWER INDUSTRY

Russell Dawe, Wildflowers Australia

An overview of the Australian wildflower industry and its organisation.

The wildflower industry is a small section of the overall Australian cut-flower industry. For purposes of this discussion the term "wildflowers" has been used to describe the range of flowers grown for sale as cut flowers within Australia and for export purposes. The term is proposed to distinguish the range of flowers from "traditional" flowers - in the widest sense relating to Australian natives and other proteaceae.

There is currently some activity in terms of a prospective development of a peak body for the national flowers industry – incorporating traditional flowers and wildflowers. The development leaves open the question of whether such an organization, potentially dominated by the traditional flower industry, which has dominated previously existing national cut-flower organizations, would greatly benefit the wildflower industry.

Why is a national wildflower body appropriate at this time.

Market development, R&D, environmental issues and international linkages are all issues which such a body could undertake.

The industry itself is wide-spread, from North Queensland to southern Tasmania, from the furthest east coast to south-west of Western Australia. Product grown for the markets is equally diverse.

How might an organization be structured to benefit the participants in the industry?

NOTES

NOTES

Aug 4 Sections de pect,
p. rose à l'immense br.

un gisement de cailloux → pierres fines
(A.N.W.)

(2) un pectolite g. en l'air → Western Ca.

No trace 1 clip a nivel nacional de wild flowers
p. via muelle, información, etc.

p. p. pectolite en peak body, en indep. del no de pect
p. thalassien en l'air

CASE STUDY 1 - NSW WILDFLOWER INDUSTRY

Bettina Gollnow

Development Officer (Floriculture)
NSW Agriculture

New South Wales

The wildflower industry forms a distinct sector of the NSW flower industry, and has attracted many new growers in the past ten years. The industry is highly fragmented and has weak links with allied industries, government bodies and other agribusinesses. In NSW there are up to 12 formal and less formal wildflower industry groups, and many growers don't belong to any group.

Many groups were tackling similar issues, so to avoid duplication and pool resources, Wildflowers NSW was established as the peak industry body representing the interests of NSW growers in 2001. The peak body is chaired by a grower and receives strong support from NSW Agriculture. Each industry group nominates a representative who is responsible for disseminating information to and from the peak body.

A major priority has been to set a few achievable goals each year and to relate successes back to growers. There have been many achievements already including a pesticide audit and first time industry interaction with state and federal agencies like the Australian Tax Office.

Wildflowers NSW has improved the ability of agencies, like NSW Agriculture, who are working to support the industry to fine tune their activities. The challenge remains to move forward on a 'low frills' basis, ensuring that as many growers as possible are involved by actively contributing and sharing in the results.

NOTES

Usar "Challenges" en vez de "problemas"
palabra

Tienen varios problemas, o desafíos

Tienen problemas de tax por' toma mucho tiempo
entre comillas y con un punto

necesitan

- > diseño de material de propag.
- > info. mercado y precio
- mejoras comerciales y estándares de la industria

CASE STUDY 2 - NZ WILDFLOWER INDUSTRY

Christine and Warwick Wright

The New Zealand Protea and Foliage Growers Association (NZPFGA) represents commercial growers of South African and Australian wildflowers and foliage primarily. We do not consider ourselves as the New Zealand wildflower industry: there are very few New Zealand natives suitable for cutflower growing and little research has gone into this.

Our strengths as an industry are largely the quarterly field trips and journal of the NZPFGA and the goodwill amongst members, with general agreement on overall philosophy. Our product is graded to target the high end of the export market. We include talks from exporters, scientists, suppliers on our field days.

Growers do their own grading and packing, marketing and in some cases transporting. There are few flower packhouses and none that specialise in proteaceae and foliage. Most export product goes through one of the 18 exporters, independent businesses covering the full range of flowers. Local product is sold to wholesalers, direct to florists or is sent to auction in the main cities.

How does a new grower learn these things? Lack of an experienced, knowledgeable advisory group hampers development. There are few young growers or properties that have continued to the second generation. Perhaps half the growers of our crops do not belong to NZPFGA or any other grower group.

A major weakness comes from having no umbrella industry body. There is no formal connection with NZFEA (exporters) and no contact with government departments.

NZPFGA are currently undertaking a small trial of four products which make claims to control Phytophthora. We have an application in for funding of a much more extensive piece of research on this subject.

NOTES

- edp 1/2 de la industria

Yola N: es la parte, el 6, el 7
y en la isla sur

Historia NZ
PFGA - representando a los productores
de protea y folio

el más pequeño local o pequeño en el mercado
para el tipo de campo, tiene espacio y "goodwill" entre los productores
y 4 roles = 4 locations = speakers

R&D - muy limitada (PFGA produce Phytophthora - Edward, Siberia)
Análisis GC - 20 personas. Para el tipo de flores
3 especialistas y 40 personas
Industria: pocas especialidades (científicos / consultores / productores)

Few large nurseries - productores (pero en Chile no está muy fuerte)
Organización: 3 F&E, 2 en Chile, 1 en Australia

MAKING THE LEAP FROM WEEKEND GROWER TO FULL TIME GROWER (INCLUDING COMMENTS ON R&D IN SOUTH AFRICA).

Hans Hettasch

Research & development

Amelia Farms, P.O. Box 192, Hopefield, 7355, South Africa

From a bare patch of land purchased in 1999, I developed a protea farm over weekends during 2000 and 2001. In 2002 I moved over to the farm on a full time basis and now have a small, but going concern. I describe my experiences during the first two years and the problem I faced building up the farm over weekends, choice of varieties, farm layout and logistics and the subsequent two years of full time farming and the challenges I still face. Although no longer involved in the industry body, I give an overview of the R&D arrangements of the industry during the past 10 years and make some comments on how I see R&D in SA in the future.

NOTES

1999 first electric.

Mr. E.H. Hettasch

2000 plants to 1st

SH 1

2001 5th

2002 35

2002 first crop

critical success factors

Mr. E.H. Hettasch

2002 35

Site Soil Climate plant scale

33° 03' S - Hopefield

150 km of both Cape Town

Soil - 1 Phosphorus

- small fraction of phosphorus in land

- better control of nutrients

to have that a limited number of

fields

pH are 3.9 - 4.2 pure lime p. 100 g/m² 5.5

lime up to 42° C - 100 g/m²

200 mm of rain in winter

no frost

Plant material - most critical factor

new material necessary for that a lot of money

75 mm plants / year to 100

Scale: 1st year plants to 1st year, 1st year

a quickly and manage > 100 g/m²

- 100

the 1st year - 100 g/m² of 1st year plants

R&D

60 x 100 g/m²

Investing: & have understanding the problem

RESEARCH—WIFM?

Chris Horsman—Member RIRDC Wildflower Advisory Committee

Research in the Australian Wildflower industry is on the edge—and I don't mean the 'cutting edge'! I mean on the edge of a cliff, facing oblivion. How has an industry with so much potential come to this parlous position? Why have we let it happen and what are we going to do about it? Why would we want to do anything about it—in other words, what's in it for me, for you, for all of us?

This paper will briefly review some of the past wildflower research and the benefits that have been derived from it. The current RIRDC 5-year plan and its goals will be again brought to the industry's attention and the members of the advisory committee clearly identified. These are the people to contact if you have projects that you feel should be funded.

Finally, I will explain why on-going industry support for targeted, practical research is vital if our wildflower industry is ever going to come of age.

NOTES

*He will be at the financial
industry. entre 1996 & 2003
- financial industry = 2000*

Prob.

- leaf bleaching

- climate - water - 100

- 100 mm of rain in winter

- 100 mm of rain in winter

- 100 mm of rain in winter

Research:

- Too difficult

- Intellectual property

- Good product efficiency

- Good use for money

So in low research

- losing experienced researchers

-

DEVELOPMENT OF NEW PRODUCTS.

11.00am-12.30pm	Session 7 - DEVELOPMENT OF NEW PRODUCTS
	Chair: Cathy Offord , Mount Annan Botanic Garden
11.00 – 11.20am	Economically and environmentally sustainable native floriculture with a consumer focus? Daryl Joyce
11.20 – 11.40am	Private venture product development: Concepts into practice Caroline O'Brien and Hans Hettasch
11.40 – 12.00noon	Breeding and commercialisation of new Leucadendron varieties Ralph Sedgley, Ben Croxford and Guijun Yan
12.00 – 12.20pm	Native cut foliage production using proteaceae species. Joanna Srhoj
12.20 – 12.30pm	Questions and Answers

Glossary - Development of new products.

Biodiversity -	diversity of plants, animals, fungi etc.
Clonal selections -	genetically identical plants that have been selected from a natural or cultivated population, see cultivar
Cultivar -	any genetically identical variety produced by horticultural techniques arising from clonal selection
Ecosystem -	A unit comprising a community of living organisms and their environment.
Genotype -	The genetic makeup of a plant as opposed to its appearance (phenotype)
Germplasm -	Genetic material, especially contained within the reproductive unit e.g. seeds, stock plants.
Idiotypic -	crop plant with model characteristics known to influence photosynthesis, growth, and grain production; ideal plant for a given purpose.
Interspecific -	between species.
Plant Breeder's Rights -	The Plant Breeder's Rights (PBR) scheme in Australia is administered under the Plant Breeder's Rights Act 1994. This Act conforms with the 1991 revision of the UPOV Convention and replaces the Plant Variety Rights Act 1987. Under the new legislation, new varieties of all plant, fungal, algal species and transgenic plants are eligible for protection.

ECONOMICALLY AND ENVIRONMENTALLY SUSTAINABLE NATIVE FLORICULTURE WITH A CONSUMER FOCUS?

Daryl Joyce^{UK}, Anthony Dunne, Margaret Johnston & Ian Gordon
School of Agronomy and Horticulture, The University of Queensland, Gatton, Qld. 4343, Australia.

The Centre for Native Floriculture (CNF) opened in May 2003 at The University of Queensland, Gatton. The CNF is a joint initiative with the Queensland State Government, with funding for an initial 3-year period. The phase-out of bush-picking under the South East Queensland Forests Agreement was a catalyst for the Centre's establishment. The CNF vision is: 'to create an internationally competitive and environmentally sustainable native floriculture industry that provides significant employment opportunities in Queensland'. The Centre is comprised of three research, development and extensions programs. The Value Chain Program will assist native floriculture industry groups in developing efficient consumer-orientated production, handling and marketing systems for select high potential species. These value chain systems will serve as models for realising the market potential of, and regional fiscal returns on, other native ornamental species identified as end-user ideotypes. The Floriculture Program will support the value chain by working to enhance germplasm for the native floriculture industry through selection and breeding, to optimise cultivation protocols, and, to overcome any technical barriers that arise; such as propagation constraints, disease problems and post-harvest limitations. The Capacity Building Program will operate to transfer technology and other skills (eg. value chain management principles) to industry members, to train operatives for the industry, and, to promote native floriculture. Conservation of natural stands of native flora will be encouraged through cultivation and by community engagement. Protection of biodiversity will be facilitated via regional production systems that spare natural ecosystems and educate the public as to the biological, floricultural and aesthetic values of native flora. Eco-agricultural tourism focused on wildflowers both in the wild and in cultivation will be advocated by the CNF.

NOTES

Floriculture: focus on breeding & develop - product market
(post harvest)

2 Programs: (1) Floriculture (2) Floriculture
(3) Capacity bldg

Severe / low production of native plants (eg. 1 Cultivar)

"Conservation through cultivation" - see page 15ff

"Flora-tourism"?

Flora advisory board

PRIVATE VENTURE PRODUCT DEVELOPMENT: CONCEPTS INTO PRACTICE

Caroline J. O'Brien and Hans B. Hettasch
Future Fynbos, P.O. Box 138, Elgin 7180, South Africa.

In May 2003 a private company by the name of Future Fynbos was formed in South Africa. Future Fynbos is a product development company, specialising in the development of new floriculture products from the South African fynbos. This venture was borne out of a need for new products, in this market segment, of which production could be scaled according to market demand. The product development is market driven and the company consists of three growers, in three distinctive growing areas in the Western Cape of South Africa, an exporter in Cape Town and an importer in the Netherlands. The medium term focus of Future Fynbos is to develop superior clonal selections of selected species. The long-term focus is to do selective breeding with the view to developing new varieties eligible for Plant Breeders Rights.

pollens B. 7 SUPPLY

NOTES

1970 - no financ. x pb.
los 3 prod. tiene x clima y suelo
El dice p' mantener los mejores flozcan en el per. medio y Europa
no los otros. Si cultivados y comercializados lo fueran, mejor a nivel
Santa, por en forma led.

BREEDING AND COMMERCIALISATION OF NEW LEUCADENDRON VARIETIES

Ralph Sedgley, Ben Croxford & Guijun Yan
signed on Victorian
Es el comercializadoren
School of Plant Biology, Faculty of Natural and Agricultural Sciences, The University of Western Australia, Crawley, WA 6009, Australia

More than 500 different interspecific cross combinations from 140 genotypes of 27 *Leucadendron* species were hand pollinated aiming at producing new cultivars suitable for Australian growing conditions. More than 2,000 flower heads were collected and about 20,000 seeds were extracted. Over 4,000 seedlings representing most cross combinations have been planted. A breeding protocol including, selection of parents, pollen collection, assessment and storage, isolation of female flowers, pollination and seed collection and germination has been developed. More than 200 potential new varieties have been selected and are being trialled on multi-sites. Eight fast-track selections have been released to the contributing growers and will be available to public by 2005.

NOTES

finis de 1970
"Pratue net" es el grupo de dependientes
led bro! carbinetias rosados / fuen, pence negro

NATIVE CUT FOLIAGE PRODUCTION USING PROTEACEAE SPECIES

Mrs Joanna Srhoj

Horticulturist, Queensland Department of Primary Industries, PO Box 1054, MAREEBA QLD 4880

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Email: Joanna.Srhoj@dpi.qld.gov.au

Presentation of the results of ongoing research and development into the commercial production of five native foliage species from the Proteaceae family.

The Queensland Department of Primary Industries in collaboration with the Rural Industries Research and Development Corporation and Yuruga Native Plants has been conducting research into the development of five native foliage products. The five species under consideration are: *Grevillea baileyana*, *Lomatia fraxinifolia*, *Athertonia diversifolia*, *Stenocarpus* Forest Lace and *Stenocarpus* Forest Gem.

The five species mentioned above have been selected based on their commercial potential. Previous research involved an evaluation of 21 species from which these five were selected based on market comments, post harvest life and ability to grow under a range of climatic conditions. *Lomatia fraxinifolia*, *Grevillea baileyana* and *Athertonia diversifolia* are all native to north Queensland rainforests. *Stenocarpus* Forest Gem and *Stenocarpus* Forest Lace are hybrids and have been developed by Yuruga Native Plants.

Current research into the commercial development of these species involves: market research, post harvest trials, field trials and extension of results. Two field trials have been established on the Atherton Tablelands, one in the high rainfall zone at Yungaburra and the other in the low rainfall zone west of Mareeba. Field trials will evaluate the effects of fertiliser rates and pruning techniques on yield. Pests and diseases will be identified and appropriate control measures tested on trial plants.

Post harvest trials and market research activities will be undertaken over the coming months. This paper will report on the results of these activities and field trials.

NOTES

Trout. p. 100: write up the ~~report~~ ^{report} → see a R. I. D. C.
fact report
- Identify each bird you see in field
- If you probably saw a myrt. y. tailed.
p. 101: *Mythofagus cunninghami* = myrtle bender

10 vido vide proxima → 24 dec, le j'écrit < attention

Osmia viridula very popular production to local
people.
P. clivator, *P. lucorum*
P. lucorum, *P. clivator*, *P. flexifolia*, *Glyptotendons*
denticulata

until 500 & 1000
s from 1000 to 1000
a few more birds

Suppose
minds of
gallies

SESSION 8

PRODUCTION INNOVATIONS.

1.30pm-3.00pm	Session 8 - PRODUCTION INNOVATIONS
	Chair: Margaret Johnston , <i>Centre for Native Floriculture</i>
1.30 – 1.40pm	Leucadendrons are short-day plants: A preliminary report H.B. Hettasch and G. Jacobs
1.40 – 2.00pm	Effect of shade on bract browning of waratahs (<i>Teloepa spp.</i>) Amelia Martyn, Robyn McConchie and Cathy Offord
2.00 - -2.20pm	Fertiliser requirements of the NSW waratah, <i>Teloepa speciosissima</i> . R. Worrall and S. Parks
2.20 – 2.40pm	Biological control in Proteaceae-an effort to solve some problems M.J. Leandro, M. Oliveira
2.40 – 2.50pm	Gibberellic Acid spray increases size of <i>Protea</i> 'Pink Ice' flowers. J. Ben-Jaacov
2.50 – 3.00pm	Questions and Answers

Glossary - Production Innovations.

Anthesis -	pollen is shed from the anthers
Flower initiation -	the commencement of changes to the shoot apex when a flowering signal (such as short days) is received
Gibberellic Acid (GA3) -	a plant hormone involved with stem elongation
Phosphorus (P) -	an essential plant nutrient which can be toxic to some plants species
Photoinhibition -	is a complex series of molecular reactions. It is defined as the inhibition of photosynthesis by excess light.
Photoperiod -	the daily light and dark cycle
Photosynthesis -	is the use by plants of solar energy to synthesise organic compounds (sugars)
Short-day plants -	plants which initiate flowers in response to short days. <i>with under days shorter than a given length</i>
Long-day plants -	plants which initiate flowers in response to long days
Day-neutral plants -	plants which initiate flowers in response to internal mechanisms, independent of photoperiod.

FERTILISER REQUIREMENTS OF THE NSW WARATAH, *TELOPEA SPECIOSISSIMA*.

Dr. R. Worrall and Dr. S. Parks
NSW Agriculture, Gosford Horticultural Institute (GHI), NSW Agriculture
LB 26 Gosford 2250 NSW
Ph. (02) 43481900, Fax (02) 43481910
(ross.worrall@agric.nsw.gov.au, sophie.parkes@agric.nsw.gov.au)

The NSW Waratah (*Telopea speciosissima*, Proteaceae) has been grown commercially as a cut flower for many years. However it has developed a reputation as a plant that is difficult to grow, with many deaths occurring. Deaths are often attributed to excessive fertiliser, especially P, or the root rot fungus *Phytophthora cinnamomi*. The relative toxicity of the waratah to P remains unresolved, with various authors describing it as 'very sensitive' to a 'gross feeder'. The interaction between N, P, K fertilisers and *P. cinnamomi* also remains unresolved. Experiments have demonstrated that *T. speciosissima* tolerates high levels of available P in hydroponics, a potting medium and a field soil and respond to it in terms of increased growth rate, providing that the P level of the growing media is increased gradually and other nutrients are at adequate levels. Published experiments where extreme sensitivity to P has been demonstrated usually involved addition of readily available P to waratahs that were initially growing in media very deficient in available P. It was also demonstrated that N fertiliser, but not P or K increased *P. cinnamomi* symptom severity for plants growing in perlite. Gradual addition of N fertiliser, but not P or K to a field soil taken from where waratahs grow naturally also resulted in high levels of mortality of waratahs growing in it for 18 months. The implication of these findings for fertiliser management of waratahs, both in the nursery and field, is discussed.

NOTES

< AMT P used

Chlorosis on lower leaves

(1) Phyt. slow } (2) Phyt. slow } (3) Phyt. slow } (4) Phyt. slow } (5) Phyt. slow } (6) Phyt. slow } (7) Phyt. slow } (8) Phyt. slow } (9) Phyt. slow } (10) Phyt. slow }

Dependent P, possible production.

Chlorosis on lower leaves

BIOLOGICAL CONTROL IN PROTEACEAE – AN EFFORT TO SOLVE SOME PROBLEMS

M.J. Leandro¹, M. Oliveira¹, E. Figueiredo² and A. Mexia²
¹Europrotea Sociedade Agrícola Lda, Av Defensores de Chaves, 23 – 5º Dto, 1000 – 110 Lisboa, Portugal
²Instituto Superior de Agronomia, Tapada da Ajuda, 1349 – 017 Lisboa, Portugal

Since the establishment, in 1999, of Europrotea's plantation, work has been done on the identification and quantification of the insect population in the region towards the definition of an Integrated Pest Management program.

As a result of a survey during the seasons of 2000 and 2001 key pests were identified, namely the Lepidoptera *Helicoverpa armigera* (Hübner), *Cacoecimorpha pronubana* (Hübner) and *Sesamia nonagrioides* (Lef.) and a still non-identified species from the genus *Paracoccus*. In this survey we were also able to observe the importance of the beneficial insect population.

In 2002 quantification of the key pest populations present in the fields commenced and some figures are proposed as economic thresholds for the Lepidoptera.

In this first stage of our research only chemical control was applied although all care was taken in the choice of products not to affect the natural enemies already present in the fields. Indeed a percentage of the caterpillars collected were parasitised and some generalist predators of mealybugs were also captured.

Along the establishment of the plants the mealybugs have become a more serious problem and very difficult to control, in particular in the species *Protea cynaroides*, using available chemicals.

So we decided to try the use of biological methods to control this pest. In the spring of 2003 a trial introduction of the mealybug predator *Cryptolaemus montrouzieri* was done with interesting results in all varieties except for *P. cynaroides*.

For the spring of 2004 a massive introduction of this predator and of the parasitoid *Leptomastix dactylopii* is planned for the control of *Paracoccus* spp.. *Trichogramma* spp. will be used to help in the control of *H. armigera*.

The protocols for these introductions are presented in this paper.

NOTES

mealybug

mealybug + other predators + disinfectant

mealybug

IN A PRELIMINARY EXPERIMENT GIBBERELIC ACID SPRAY INCREASED SIZE OF PROTEA 'PINK ICE'

I. Ben-Jacov

ARO, The Volcani Center, PoBox 6 Bet Dagan, 50-250, Israel (Emeritus)

Flowering buds, about 40 mm long, were sprayed with aqueous solution of 1000 ppm Gibberellic Acid (GA3, using Berelex® produced by Valet Bioscience, USA) and 0.025 % Triton® x-100 surfactant. (produced by BASF, Germany).

Treatments started on July 15 2003 (in Israel N. hemisphere). Treatments were: Control which was sprayed with water and surfactant, Single spray with GA3 and surfactant, on July 15, Four weekly sprays with GA3 and surfactant, starting on July 15.

Buds were measured on August 15, one month after treatments started. Lengths of the buds were: Control- 53 mm, Single spray- 81 mm and Four weekly sprays- 105 mm. Width of the buds were also greater in the GA3 treated flowers.

At harvesting time the Control flowers were 93 mm long and those receiving Four weekly sprays of GA3 were 121 mm long. The coloured involucre bracts were also much longer in the GA3 treated flowers, than in the control flowers.

The GA3 treated flowers were more attractive than the un-treated control flowers. It seems that the life of the treated flowers was better than that of the un- treated ones (see photos).

OTES

Pink Ice: only to obtain peak flowering
 → color conversion (to red)

SESSION 9

FARM MANAGEMENT SYSTEMS.

3.30pm-5.30pm	Session 9 - FARM MANAGEMENT SYSTEMS
3.30 - 3.50pm	Chair: Guijun Yan , University of Western Australia
3.50 - 4.10pm	Farm management records Robert Middelmann
4.10 - 4.30pm	Interactive budgeting programmes Audrey Gerber, Jessica Connor and Lindsay Trapnell
4.30 - 4.50pm	Improving flower production profits with good records and performance analysis Gerry Parlevliet
4.50 - 5.15pm	Profit share as a management tool for competing, cooperating and caring Ralph Jordan
	Questions and Answers

Glossary - Farm Management Systems.

Capital -	Items which have not been used up including land, equipment, livestock and money.
Cash flow -	The movement of cash in and cash out of an enterprise or whole farm.
Depreciation -	The loss in value of capital over time
Discounting -	Calculating the present value of a future sum by multiplying the future value by a discounting factor.
Dry sheep equivalent (DSE) -	The amount of feed required to maintain a 48kg wether for a period, usually one year. Refers to the carrying capacity of the land.
Enterprise -	The production of a particular commodity or groups of related commodities; a more general term than 'activity', eg. wheat.
Gross Income -	Gross income is estimated from your potential yields multiplied by the potential price.
Gross margin -	Gross income less the variable costs. Gross Margin (\$/ha) = Gross Income - Variable Expenses
Inflation -	An increase in the supply of money in relation to the goods and services available and, as a result, a decline in the value of money.
Internal rate of return (IRR) -	The discount rate at which the present value of income from a project equals the present value of total expenditure (capital and annual costs) on the project; the break-even discount rate.
Net present value (NPV) -	The sum of discounted values of the future income and costs associated with a farm project or plan.
Opportunity cost -	The opportunity cost of a farm's management decision is the amount of money which is given up by choosing one alternative rather than another.
Scenario -	A sketch of a possible outcome(s).
Sensitivity testing -	Checking the effect on a planned outcome of a change in one of the factors contributing to that outcome.
Variable expenses -	The actual running costs such as seed, fuel, fertiliser, water, dip, packaging, delivery costs chemicals etc.

From 'The Farming Game Now', Makeham and Malcom (1998) and www.dpi.vic.gov.au. For further definitions please consult economic texts.

46

IMPROVING FLOWER PRODUCTION PROFITS WITH GOOD RECORDS AND PERFORMANCE ANALYSIS

Gerry Parlevliet

Senior Development Officer, Department of Agriculture, 3 Baron Hay Court, South Perth, Western Australia,
Email: gparlevliet@agric.wa.gov.au

Little benchmarking had been carried out in the flower industry with equally little performance analysis reported in the literature. The Western Australian flower industry recognised that it needed to benchmark the economic and production performance of growers. The Rural Industries Research and Development Corporation (RIRDC) with the Department of Agriculture and Fisheries (Industry organisation) funded the project Improving profit in the Western Australian Native flower industry through benchmarking, DAW-102A. The benefits were identified as improved understanding of the cost structures and production parameters; the ability to analyse the results developing a clear indication of profitability; and the ability to bring growers together to develop ways to improve production efficiency and profit.

Growers worked with the project staff to identify their production and financial information. This was entered in a spreadsheet developed for the purpose. Data was then calculated into a set of benchmark indices and results provided back to growers.

Cooperating growers, growing a range of native, protea and exotic flowers, generously collated their information (often from multiple locations) and this data is provided in the presentation. However it became very clear very quickly that profitability is not high. The main cost is labour representing up to 75% of their total operation cost. Many smaller growers had very high overheads which spread over low production and thereby resulting in negative returns. Generally plants, fertilisers, sprays were minor costs and did not negatively impact profits, however some of the levels suggested additional nutrient management would increase production and profitability. Yields, varietal selling price differences, price differences received from different exporters impacted significantly.

Cost savings in labour and overheads are essential for continued viability as is improving yield and quality to spread the overhead costs over a larger volume. The results are mainly from one year but early indication for the second years data suggest exchange rates and subsequent prices for export products will impact significantly on profit.

In addition, the project has carried out a wide ranging literature review and is developing a self guided manual for growers to have the tools to carryout their own bench-marking in future. These will be available in the final report available from the RIRDC website when the project is completed in 2004.

NOTES

PROFIT SHARE AS A MANAGEMENT TOOL FOR COMPETING, COOPERATING AND CARING

Mr. Ralph Jordan

Managing Director – Spacific Growers Ltd., 7 Heron Place, Waiuku, New Zealand 1852

Phone : +64 9 2357588; Fax: +64 9 2357588; Email: rjordan@ihug.co.nz

It is often taught that delegation lightens up the work and much to that, it makes work more efficient and effective. The author, after 15 yrs. of flower growing as an owner operator, implemented this principle in a system of cost centres and profit share to motivate, teach and reward workers who wished to make this industry a vocation.

The ten subsequent years of financial reports incorporating refinements through experience forms the basis of this paper. It is written to share the experience gained, which eventually led to the author's goal of selling the company at retirement age... coincidentally to his managers.

The conference theme "Competing, Cooperating and Caring" are appropriately identified with a profit sharing management scheme: "competing" which means healthy competition among workers and other growers; "cooperating" being the combining of forces and working as a team; and "caring" which sums up as being considerate not only to the company, but to the industry that we are working with.

Plant or product specialisation and cost efficiency are just some of its benefits. Profit sharing focuses people on eliminating loss and increasing revenue. The experience in this business also resulted in employees remaining loyal.

NOTES

POSTERS

1.	<i>Development of a protocol to assess phytophthora tolerance in Leucadendron using excised stems</i> Guijun Yan, Ben Croxford and Ralph Sedgley
2.	<i>Interspecific hybridization and embryo rescue of Leucadendron</i> Hui Liu, Guijun Yan, Ralph Sedgley, Ben Croxford
3.	<i>The inheritance and variation of chloroplast DNA in Leucadendron (Proteaceae)</i> M. Pharmawati, Guijun Yan and Ralph Sedgley
4.	<i>Colletotrichum diseases of Proteaceae-linking pathogenicity and histology</i> C.M. Lubbe, S. Denman, S.C. Lamprecht, J.Z. Groenewald and P.W. Crous
5.	<i>Characterisation of Colletotrichum species associated with diseases of Proteaceae</i> C.M. Lubbe, S. Denman, S.C. Lamprecht, J.Z. Groenewald and P.W. Crous
6.	<i>Pathogenic fungi and bacteria affecting protea plantations in Chile</i> Herrera, R; Obreque, M., Vico, V., Rebolledo, P., Lolas, M., Schiappacasse, F., and Sandoval, C.
7.	<i>International Proteaceae cultivar registration</i> J. Sadie
8.	<i>Nectar of Proteaceae</i> C. Devauchelle, B. Limier and M.V. Carrera

DEVELOPMENT OF A PROTOCOL TO ASSESS PHYTOPHTHORA TOLERANCE IN LEUCADENDRON USING EXCISED STEMS

Guijun Yan, Ben Croxford, & Ralph Sedgley

School of Plant Biology, Faculty of Natural and Agricultural Sciences, The University of Western Australia, Crawly, WA 6009, Australia

Leucadendron is a major wild flower crop in Australia. To increase the competitiveness of the local industry, a breeding program based on interspecific hybridisation was initiated in 1998. Since this time, thousands of hybrid plants have been produced involving 27 different parental species. These were planted at the farms of contributing growers for evaluation but large losses have occurred at some sites with symptoms indicating that infection by *Phytophthora cinnamomi* may be responsible.

To assess the sensitivity of different Leucadendron genotypes to *P. cinnamomi*, three experiments were conducted to inoculate more than 40 Leucadendron genotypes both as established plants and as excised cuttings with *P. cinnamomi* pathogen. Both lesion development and plant death at day 12, day 24, day 36 and day 52 after inoculation were recorded to evaluate the tolerance and susceptibility of Leucadendron genotypes.

Intact plants were very slow to show any symptoms with most genotypes remaining without symptoms after 80 days. Inoculated excised stems developed lesions within 8 to 13 days after inoculation. Genotypes such as *L. procerum* (1) and *L. rubrum* developed lesions in 100% of the stems within 36 days while others such as *L. eucalyptifolium* and 'Inca Gold' showed no lesion development in any stems after 52 days. The *Leucadendron* genotypes used in this trial can be divided into 3 groups based on their relative tolerance to inoculation with *P. cinnamomi*. The group with the highest tolerance showed no symptoms following inoculation (no lesions or death). The medium tolerant group developed lesions following inoculation but these lesions tended to be small and had a low mean degree of girdling and all the plants trialled survived at day 52 after inoculation. The susceptible group developed larger lesions, higher degree of girdling and death of stems at day 52.

A protocol has been successfully developed, using excised stems, to assess the tolerance and susceptibility of Leucadendron genotypes to *P. cinnamomi*. These results are helpful for the selection of parents in our breeding program to produce highly tolerant new Leucadendron varieties and may also be useful for the growers to make decisions on selecting suitable varieties on their properties.

NOTES

PATHOGENIC FUNGI AND BACTERIA AFFECTING PROTEA PLANTATIONS IN CHILE

Herrera, R; Obreque, M., Vico, V., Rebolledo, P., Lolas, M., Schiappacasse, F., and Sandoval, C.

Facultad de Ciencias Agrarias, Universidad de Talca, Talca, Chile

Protea species have been introduced as new commercial crops during the last decade in Chile. The area where these species are cultivated has increased during the last years and is located between the V and VII Regions (approximately 33° south latitude and 35° south latitude). However, insects and diseases which could affect them, decreasing productivity and quality, has not been described for our country. In order to get a better knowledge about the nature of microorganisms associated, samples were taken from plants showing symptoms that could be related with the presence of plant pathogens, with the aim to identify pathogenic fungi or bacteria. From the total of pathogens detected and identified, 86% were fungi and 14% were bacteria. Among fungi, we found the genera *Phytophthora* sp., *Fusarium* sp., *Alternaria* sp., *Cladosporium* sp., and *Botrytis* sp., all of them reported previously in other countries as pathogens that affect Proteaceae plants. In the case of pathogenic bacteria, it was possible to identify the presence of *Pseudomonas* sp., and *Xanthomonas* sp. The first one was found in the genera *Protea*, *Leucadendron* and *Leucospermum*, and the other in the Chilean native Proteaceae *Gevuina avellana*, as well as in *Protea*. *Xanthomonas* has not been reported previously affecting plants of this family. Considering that *Fusarium* was one of the widest spread pathogen, a field assay was carried out, during the season 2003/2004, to evaluate *Trichoderma harzianum* as a biological control alternative. Different concentrations of this fungus (conidia suspensions) were applied as treatments, before inoculation with *Fusarium* sp. A commercial fungicide (benomyl) was used as control, including also two other treatments without applications, one inoculated with the pathogenic fungus, and the other inoculated with sterile water. *Trichoderma* reduced the incidence of *Fusarium* wilt, and the two highest concentrations tested (109 108 conidia/ml) did not differ statistically from benomyl.

OTES

INTERNATIONAL PROTEACEAE CULTIVAR REGISTRATION

J. Sadie (Registrar: IPCR)

National Department of Agriculture, Private Bag X5044, Stellenbosch 7599, RSA

Registration of cultivar names in the Family Proteaceae commenced in the 1980's under the auspices of the ISHS Commission for Nomenclature and Registration, when the South African Department of Agriculture was appointed the International Cultivar Registration Authority (ICRA) for Proteaceae (excluding the Australian genera). The main purpose of the ICRA is to promote order and stability in the assigning of cultivar names and to provide a registration system.

During the past 20 years various talks and posters have been presented at previous IPA Conferences promoting and explaining registration of cultivar names. The International Proteaceae Cultivar Register and Checklist (IPCR) have been developed and currently covers 21 genera. The number of cultivar names listed in the publication has grown to approximately 450. The other major achievement was publication of the IPCR on the Internet including an illustrated version with colour photographs.

The service of the ICRA is at the disposal of anyone who needs advice and information regarding cultivar names. Breeders can use the IPCR to their benefit to establish cultivar names even before commercialising or applying for Plant Breeders' Rights to ensure that their cultivar names are unique and acceptable.

NOTES

NECTAR OF PROTEACEAE

C. Devauchelle, B. Limier and M.V. Carrera,
PRONECTAR, 131 Impasse des Palmiers 30100 Alès - France
Email: pronectar@wanadoo.fr

The nectar is a sweet juice secreted in a gland situated in the depths of the corolla of certain flowers. This characteristic can be considered as belonging to the most evolved plants, assuring their fertilisation while minimising the energy necessary for the elaboration of their sex cells. Rather than to scatter according to winds their grains of pollen, these plants confide to certain sorts of insects, birds and rare mammals the delicate mission to convey them from a flower to the other one.

Because of his important concentration of carbohydrates, vitamins, proteins and minerals, the nectar has been used since long time in the nutrition. Protea is one of the most productive flowers in the world. The first European settlers collected the nectar of Protea and boiled it to replace sugar. The Khoisan and Zulu tribes also use the nectar as a food ingredient because of his high nutritional level.

Nowadays, Pronectar, in partnership with private and public research bodies, has developed a high technology to make the nectar of flowers a quality product adapted to numerous uses: cosmetology, nutrition, medicine, dermatology, etc. It has conferred to Pronectar an important place in the natural and environmental issue.

NOTES

Notes

INTERNTL. MARKET PERSP. & TRENDS

- 1) AUS
Japan est prod. merced. p' sus flows
En otros países tienen compet. / otros países del W. Sur
Flote es el + alto cost
- 2) SA - Portugal Export 130 million, goods
150 growers excludes freight rate
 $\frac{130}{60} = 2$ 130 : 6
60 : 1
case de 20 mill. USD
- 3) Zimbabwe
130 ha
"Cooperative growers" 1 alone, hay 700% Efficiency
sup de 3-70 ha
- 4) Portugal
- 5) Ch.
- 6) U.S. Protea Assoc. en su pág web, la está actualizando
Backyard growers
20 growers in S. Diego
no Research, except in Hawaii
- 7) Hawaii 35 farms
1 mill. dollars
US\$ 10 - 14 000 x acre
now 700 much soil, usually dry (drought)
40% lcp.
• 2 weeks without leaf black with dextrose !!
- 8) Canarias 26 ha 50% lcp. 60 Palms 10% 50 growers
- Blueberry dextrose 40% lcp.
- Fertil commercial 10% Palms
Prefieren dextrose en turismo
- 9) NZ 56 growers Graft well
Phyt. A prod. overtop.
- 10) AUS Botswana no statistics
En Putol, 10 ha 1 ve large growers !!
5/10x Separate prod. & collected 16 Austral
for labor



GOBIERNO DE CHILE
FUNDACIÓN PARA LA
INNOVACIÓN AGRARIA

ANEXO 2

MATERIAL ENTREGADO EN CHARLA DE DIFUSION

**“ACTUALIZACIÓN DE LA INVESTIGACIÓN
INTERNACIONAL Y MANEJO PRODUCTIVO DE
PROTEACEAS EN MELBOURNE Y AUCKLAND”**

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JUNIO 2004

Actualización de la investigación y manejo productivo en Proteáceas

Marzo/abril 2004

I Antecedentes generales de las Proteáceas

Las proteáceas son una familia muy antigua, que existía antes que Gondwana empezara a separarse en trozos de tierra, hace unos 140 millones de años.

Se han identificado cerca de 1400 especies en más de 60 géneros, originarios de Australia, África (principalmente Sudáfrica), Centro y Sudamérica, Nueva Guinea e islas cercanas, Nueva Caledonia, Madagascar, Sudeste de Asia y Nueva Zelanda. Se agrupan en dos subfamilias, *Proteoideae* y *Grevilleoideae*.

Los géneros más cultivados comercialmente como flor o follaje cortado son *Banksia*, *Dryandra*, *Hakea*, *Grevillea*, *Conospermum*, *Isopogon* (originarios de Australia); *Protea*, *Leucadendron*, *Leucospermum*, *Mimetes*, *Aulax*, *Serruria* (originarios de África, principalmente de Sudáfrica). También se comercializan, aparentemente sin cultivarse, *Gevuina* y *Lomatia* (originarios de Sudamérica).

Los países donde se están cultivando proteáceas actualmente son Sudáfrica, Australia, E.E.U.U. (Hawái y California), Zimbabwe, Nueva Zelanda, Israel, España (Islas Canarias), Portugal (sur del país e islas Azores y Madeira), México, Chile, El Salvador, Ecuador y Francia.

II Antecedentes generales de las proteas en Australia

No se dispone de estadísticas exactas de la superficie cultivada de proteáceas en Australia, porque en los predios siempre se cultivan en mezcla con otras especies no proteáceas, en especial con plantas nativas de ese país. Se estima que hay 1000 ha.

El principal mercado es Japón, y en otros países tienen competencia con otros productores del hemisferio sur. El flete aéreo es un costo muy alto según los productores. Éstos están agrupados en la "Asociación australiana de productores de follaje y proteas", cuya página web es www.afpga.com.au.

Uno de los problemas que tienen los productores de "wildflowers" o flora silvestre es que no existe a nivel nacional un organismo que reúna la información de mercado y producción. Existen cuatro grupos de productores distantes entre sí, que no se comunican ni se estructuran bien, que son los productores de la zona al norte de Queensland, sur de Tasmania, costa este de Australia y suroeste de la zona oeste de Australia.

Otro gran problema que se ha presentado es que se ha reducido, desde 1996, el financiamiento a la investigación en el rubro. Es un gran problema, puesto que los agricultores reconocen que la investigación puede ayudar a reducir sus costos, es deducible de impuestos, puede dar origen a derechos de propiedad intelectual y generalmente mejora

El sr. John Francis tiene una propiedad en la cual cultiva diferentes *Leucadendron* para vender como planta de jardín en el mercado local, y otras para producción de flores de corte, las cuales las vende en el mercado local y también exporta a Japón. Ha realizado plantaciones recientes con medieros que proporcionan su terreno y trabajo, y él da el material vegetal y la asesoría, los gastos de cosecha son a medias y los ingresos también son a medias.

En su propiedad tenía una selección de plantas de *Leucadendron* 'Safari Sunset' que florecían más temprano que las del cultivar tradicional. En el momento de la visita las plantas ya estaban formando el cono, mientras las otras estaban aún vegetativas. Además tenía otros cultivares, siempre de *Leucadendron*, muy interesantes, y otras plantas que no eran proteáceas, pero que se utilizan por su follaje, como *Pittosporum*, *Griselinia* y *Lophomyrtus*.

La propagación de estacas la realiza siguiendo el mismo procedimiento que en otros viveros, con la diferencia que utiliza 2000 ppm de IBA en vez de 4000, enraíza en oasis y además utiliza un fertilizante de lenta liberación al momento de trasplantar.

En la plantación también usa el fertilizante de lenta liberación, en cobertera, porque no tiene sistema de riego.

IV Conferencia IPA, 3-7 de abril de 2004

La Asociación internacional de proteas, IPA (www.ipa-protea.org), tiene la función de desarrollar la industria de plantas y flores cortadas de Proteáceas por medio de:

- Difundir información a nivel mundial en todos los aspectos de producción de las plantas, el manejo del cultivo y el manejo de las flores cortadas y su comercialización
- Estimular el interés en la investigación en todos los aspectos de la industria
- Organizar conferencias para personas relacionadas con la industria

Las conferencias coinciden con los simposios de la Sociedad Internacional del Grupo de trabajo internacional de protea (IPWG), cuyo objetivo es proveer un foro para los investigadores y productores de proteáceas para discutir problemas y progresos en la investigación, con especial énfasis en temas como cultivo, propagación, mejoramiento, calidad pre y poscosecha, plagas y enfermedades, aspectos nutricionales, además de investigación básica en taxonomía, citología, genética, etc. Para ser miembro de este grupo hay que pertenecer a la Asociación Internacional de Ciencia Hortícola (ISHS).

Las conferencias son cada dos años y se realizan alternadamente en el hemisferio norte y en el hemisferio sur, en países que posean una asociación. Entre el 3 y el 7 de abril de 2004 en Melbourne, Australia, se llevó a cabo la última conferencia.

Se realizaron diversas charlas y se presentaron posters, cuyo contenido se publicará en un Acta Horticulturae.

Entre los temas de interés que se mencionaron en esta sección fue el anuncio del representante de Hawai acerca del buen control logrado, por medio del uso de dextrosa, de un problema de poscosecha que presentan algunas especies y cultivares de *Protea* llamado "leaf blackening" o ennegrecimiento de hojas. También fue interesante el informe de Zimbabwe, en que se dijo que, a pesar de todos los problemas políticos y del 700% de inflación, la producción de proteáceas aún subsiste. El contenido de esta sección se adjunta y está por publicarse en el journal de IPA.

4. Comunidades dentro de la industria (3 casos)

Hacia una organización líder para la industria de flores silvestres australiana

Caso 1: Industria de flora nativa de New South Wales (Australia)

Caso 2: Industria de flora nativa de Nueva Zelanda (Nueva Zelanda)

Caso 3: Salto de productor de fines de semana a productor tiempo completo (Sudáfrica)

Necesidades de la industria en investigación y desarrollo (Australia)

5. Desarrollo de nuevos productos

¿La Floricultura de silvestres es económica y ambientalmente sustentable centrada en el consumidor? (Australia)

Desarrollo privado de producto: conceptos en práctica (Sudáfrica)

Mejoramiento y comercialización de nuevas variedades de *Leucadendron* (Australia)

Producción de follaje cortado nativo usando proteáceas (Australia)

6. Innovaciones en la producción

Los *Leucadendron* son plantas de día corto: un informe preliminar (Sudáfrica)

Efecto del sombreado sobre el bonceado de *Telopea* spp. (Australia)

Requerimientos de fertilización de *Telopea speciosissima* (Australia)

Control biológico en proteáceas – un esfuerzo para resolver algunos problemas (Portugal)

En un experimento preliminar el ácido giberélico aumentó el tamaño de *Protea* 'Pink Ice' (Israel)

7. Sistemas de gestión de predios

Registros de gestión de predios (Sudáfrica)

Un modelo presupuestario interactivo y genérico usando la industria de flora silvestre como ejemplo (Australia)

Mejorando los beneficios económicos de la producción de flores con buenos registros y análisis de gestión (Australia)

Repartición de beneficios como herramienta de manejo para competir, cooperar y cuidar (Nueva Zelanda)

Posters

- Desarrollo de un protocolo para determinar la tolerancia de *Phytophthora* en *Leucadendron* usando trozos de tallos (Australia)

- Hibridización interespecífica y rescate de embriones en *Leucadendron* (Australia)

AREA REPORTS

AREA REPORT - WILDFLOWERS AUSTRALIA (formerly Australian Protea and Floral Ass)

Report by
Barbara Paterson

Australia has no mechanism for determining statistics for the number of protea growers or quantity of flowers grown. As much of the internal trade is conducted on a cash basis and membership of grower groups is voluntary, any figures are almost impossible to even estimate. Anecdotal evidence supports the proposition that the number of growers remains static. Older, tired and/or disillusioned growers leave the industry while younger people full of enthusiasm and vision move in to take their places.

Most of eastern Australia has been severely affected by drought since the last International Conference. As a result of this, production on most farms has fallen. At the same time the strengthening of the Australian dollar caused a decline in international export trade. With one helping to balance out the other, local prices were firm. Queensland is blessed with flower auction houses that make marketing in that state more simple. As elsewhere, quality attracts premium prices. The drought in Queensland broke in the summer and the ensuing rains and heat caused tremendous growth of protea weeds.

Australian farms are recognised as being clean and green (not much of a selling point when it comes to flowers), and highly efficient. Labour costs are some of the highest in the world, most farmers paying \$14 to \$16 per hour for unskilled labour.

Proteas produced are what are on show here in the beautiful floral arrangements. Pink ice is probably the most common variety, while King protea attracts the highest prices. A gradual change in florists' attitude to native flowers, helped by an AFPGA advertising programme has seen more mixing of traditional flowers with natives producing some beautiful results.

Research continues into all aspects of flower production. As most of the research programmes are on the agenda for this conference I will not itemize them. The quest for new cultivators continues.

Also on the conference agenda are details of the Centre for Native Floriculture at the Queensland University Gatton Campus for which the Queensland Government has provided funds. The success of this enterprise holds great hope for the future of the native flower industry in Australia.

The Australian Protea and Flora Growers Association has undergone a name change. It is now "Wildflowers Australia". It is felt that this name more accurately reflects the interests of the members and more fully embraces all types of Proteaceae of which Australia has an abundance.

AREA REPORT - CALIFORNIA

Report by Ben Gill

The California protea market is rolling along similar to the rest of the protea world. Prices do not seem to be going up while cost of production continues to increase! Market share of the speciality market is strong, with the exception of times of over production with no floral holidays.

Large commercial growers throughout the state still number around 20 with smaller growers of over 20 acres or less making up the remainder of the majors, while the hobbyists continue to blossom.

There has been a significant increase in gardeners wanting proteas, Leucospermums, Leucadendrons and banksias for landscaping. This is a direct reflection of the promotional efforts of the California Protea Association and its members. Garden shows with flowers and plant sales increasing the awareness of the flower buying public, as well as the gardening enthusiasts. All want to experience this majestic flower in its natural beauty.

Estimates of growers are hard to determine because of the backyard growers. Commercially there are 2040 good size growers plus the 20 larger commercial growers bringing the estimate number to 80.

- High price of protea plants
- Lack of investment in agriculture
- Lack of specialised nurseries, although its number is increasing slowly
- Lack of experience and training on protea growing
- Lack of technical information
- Low production and low supply to market

Opportunities

- Good soil and climate
- Excellent experience in flower marketing
- Increasing demand of flowers in the local market (hotels, restaurants, etc)
- Free access to the European Union market

Future outlook

The Canarian government is funding the ornamental sector and some protea growers are obtaining funds for new developments.

In La Palma the council of the islands has stopped to fund new plantations till the profitability of the ones during the last four years can be assessed.

However, in Gran Canaria the council of the islands is promoting the crop by funding new plantations.

In Tenerife the development is very slow as people are more interested in investing in tourism than agriculture.

AREA REPORT – CHILE

Report by
Flavia Schiappacasse

Chile lies between 17° and 56° South along the Western Seaboard of South America and has a population of 15 million people. The climate varies according to location from icebergs in the South to high snow covered mountains in the north. Chilean export is dominated by copper mining, forestry and general agriculture. Cut flower export is valued at less than US\$4,000 covering mainly lillium, tulip, carnation, peony, and liatris. These are marketed mainly to the US but also to Argentina. Bulbs and Flower seeds exports are valued at US\$24 million.

The first proteaceae were introduced in 1993 by the Catholic University at Valparaiso. Expansion of the rest site took place between 1997 and 2000. In 1998 a private company, Flores del Fynbos, established Proteaceae in San Antonion. Between 1998 and 2000 the University of Talca established *Leucadendron* 'Safari Sunset' and introduced a further project to run from 2001 to 2004. Another project is up and running in Pichilemu (2002 to 2005) and the private company is busy on a project since 2002. All these plantations are situated between 32° and 36°S.

The commercial production of proteas is quite recent; the plantations have had only 2 to 3 harvest seasons. The main cultivated genera are: *Leucadendron*, *Protea*, *Banksia* and *Leucospermum*. *Leucadendron* 'Safari Sunset' accounts for 90% of plantings. There are approximately 7 growers on 70 hectares and two growers in the Litueche region who have a total of 50 ha.

Since 2003, some growers have started to export. Most of the stems have been exported to Holland, with the rest exported to the US.

AREA REPORT - HAWAII

Report by
Carver Wilson, Maui Floral

Hawaii's Protea industry is made up of about 35 farms according to the membership roles of the Protea Growers Association of Hawaii. About 26 of those actually report their production and sales statistics to the Department of Agriculture. To complete this project I spoke with a few of my peers and offer this commentary.

Our industry reports farm gate sales (flowers in buckets) at about \$1 million per year (\$5,000 per acre); but this number seems somewhat low. We have about 200 acres devoted to Protea with about 25% of it marginal as plants are either old or diseased and due for replacement or are new and have yet to become productive. Our production numbers equate to about \$10,000 per acre on average with ideal conditions being

This information has been compiled based on information available to the New Zealand Protea and Foliage Growers Association. As a result of New Zealand Flower growers refusing to accept levy and the subsequent failure of Flora Fed there is no central body to assemble information such as this and therefore any figures quoted are at best estimates and at worst guesses.

Numbers of growers

NZPFGA membership currently stands at 56. Most of these grow Protea or Leucadendrons. There could be two or three times this amount that are not members.

Area Planted

There is no record of this. The average planting of NZPFGA members is about 2 hectares.

Markets and marketing

Over the past 18 months the international market has been affected by a reduction in the number of flights to export markets due to SARS. This has put exporters under pressure to find new markets and some progress has been made into America.

Locally there has been a move away from the traditional auction markets towards direct contact between growers and wholesalers and commission buyers. This has resulted in a more stable set price than the wild fluctuations sometimes seen at the auction.

Recent research Projects

NZPFGA has initiated two research projects into Phytophthora. One, involving small scale plantings of Leucadendrons treated with a variety of commercially available treatments, was financed by the Association. This project is not yet completed but initial results are showing very little, if any effect by these treatments. The second larger project to be carried out by two scientists from Hort Research is awaiting the result of a funding application to the Government's Sustainable Farming Fund. If this application is successful the project will be carried out over three years into the causes and cures of Phytophthora in Protea and Leucadendrons.

Publications

NZPFGA continues to produce the Protea Press magazine containing Association news together with other articles of interest to members. This magazine, together with regular field days, is the cornerstone of the Association. It is produced to a very high standard, containing about 20 pages including colour photographs.

Local problems

As indicated by the Research projects Phytophthora continues to be a major problem to growers. This, together with Silverleaf, is the main cause of losses of plants and productivity.

Delays have been experienced in obtaining quantities of growing on lines and stock of some varieties.

Future Opportunities

As a result of research conducted it is hoped to increase the life span of plantings and increase productivity. There has been an increase in interest from exporters and sales are up in some U.S markets.

Value of Exports

Exports continue to be the main marketing focus with around \$2M compared to less than \$1M from local markets.

Future Outlook

Growers feel that with the NZ dollar being valued so highly against the US and with the number of plant losses due to Phytophthora that things can't get any worse. This is slightly offset by an interest rate that has been low for some time. Unfortunately that has created a land rush, particularly from the city into the country, pushing land values skywards and making things very difficult for new growers. With interest rates now starting to rise those who could afford to purchase land are being squeezed with mortgage payments. If you have survived into productivity your returns have been cut into by the rising \$NZ. The future? Hopefully our research results and a change in the exchange rate will return us to profitability.

AREA REPORT - PORTUGAL

Report by
Carlos Ormonde

Total area – 95 ha

species and age of the plant how many flowers it bears. Only accurate data can be extrapolated properly and for that one would need each and every producer to have accurate records.

Species (hectare)

Area	Proteas	Leucospermum	Leucadendron	Other
Cape	512	144	206	96
Northern region	41	6	26	0.03
KZN	13	4	10	0.05
TOTAL	566	154	242	96.08

My thanks to our producer committee for trying to establish the extent of the Industry, and particularly Carlo Pieterse who put all the details together.

Markets and Marketing

Up to the time of sanctions, mostly poor quality proteas from the wild were being delivered to the USA. This resulted in many insect and disease interceptions. Since returning to democracy we were given partial dispensation under strict protocol to export to the USA. The new anti-terrorism bill is now enforcing even more stringent requirements, making a breakthrough into that market very difficult.

South Africa's main market remains the Netherlands and Germany where no growth has been experienced for some time. Many third world countries are entering the flower growing scene due to the fact that it is labour intensive and creates new jobs. Due to their own strict environmental legislation a number of EU companies have opened up companies in third world countries where the climate is more conducive to cost effective growing, and where labour costs are lower than at home. The new EU countries and former Eastern Block are themselves starting to grow and market flowers. These countries are currently seen by developed countries as growth points for the floriculture trade. The supermarket and garden centre chains are increasingly important in the trade of flowers, particularly with regard to ready-made bouquets. It is from here that the strongest lobby comes for flower certification and traceability to satisfy the "green" 1st world consumers. The interesting thing is that the EU which has been in quite a nasty recession lately, is predicting growth for the next few years, but unfortunately not really in cut flowers – growth is expected in the pot plant sector. That leads me to believe that money is tight and people want long-term value, but it must be natural and that means that silk is currently not in favour – long may it be so.

Recent research projects

Although some horticultural research is continuing at the University of Stellenbosch, the pathology department that was such a leader in Fynbos research a few years ago has lost their expertise to overseas institutions. We have a brand new Masters degree qualified pathologist at ARC.

With the retirement of Prof Jacobs we have lost our research champion. Dr. Mike Cramer who took over from him, is joining Cape Town university, which I think is great as there is a lot of Fynbos expertise there, but more on a conservation and botanical level and not necessary on the commercialisation side. How this will pan out remains to be seen.

Meanwhile the Agricultural Research Unit at Elsenburg is now seriously depleted with 4 important key personnel having left in the last few months. The entire ARC hierarchy is being criticized for nondelivery. Their top management makes no secret of the fact that their efforts will be geared towards the previously disadvantaged individuals across all agricultural sectors, thereby neglecting organised commercial agriculture. Realising that we can no longer fully rely on the ARC and other institutions, groups of protea farmers are responding by getting together to fund their own research and develop their own cultivars. This is a healthy development as such, but will come at the cost of formal research at institutions and a shortage of Fynbos researchers for the future.

Publications and other aids

The Cape Flora brochure has always been an excellent selling tool for the industry, but is getting outdated and will need urgent attention at a time when there is a certain amount of unrest in the Industry due to rapid changes that have taken place in a short space of time. The project will require lots of time and dedication – currently something in short supply.

Value of exports and local market

With prices on our export markets remaining stable, and cost increases in South Africa, combined with an unfavourable exchange rate, the Industry has not seen much of an increase in value. Having said that, our promotion efforts have shown remarkable success with frequent mention and photos of Cape Proteas in the most influential German florist trade magazine. Sales increased by almost 14% from 2001 to 2002 and have held firm in 2003. We are convinced that without our promotion work, this would not have been the case. In

Protea growers are aware of the need to continue research for our industry to move forward. Financially in order to do so, the ZPA has, after a lengthy process, introduced a research levy from the 1st March 2004. This compulsory levy of all Proteaceae types is charged per kg exported.

Publications

ZPA Newsletters
Zimflora newsletters

Exhibitions

EFGAZ, (The Export Flower Growers Association of Zimbabwe) exhibited in the 2002 and 2003 Hortifair in Holland in which the ZPA participated.

Local problems

The continued economic and political insecurity has been a major disincentive for producers to expand. Since the last I.P.A. Conference we have seen a further 2300% devaluation. Interest rates peaked in December at 770%. Inflation also peaked around the same time at 700% and continues to be in the same region.

The result and spin-off of these effects over the last four years has seen a decrease in infrastructural efficiency as well as a considerable increase in unemployment. This has further affected the levels of crime.

There has been a loss of Zimbabwean growers to neighbouring African countries and it is anticipated that a number of these producers will consider starting up again.

Main diseases isolated from cultivars are:

Leucospermum: Drechslera, Elsinoe, Pestalotiopsis, Botryosphaeria
Leucadendron: Fusarium, Colletotrichum, and Botryosphaeria
Protea: Fusarium, Botryosphaeria, Colletotrichum, and Elsinoe

Opportunities

Zimbabwe still has a favourable climate and relatively cheap labour. Our well developed flower export industry and associated logistical infrastructure is still firmly in place.

The future outlook

The political and economic problems have taken their toll. The effects of which will be long lasting. There is not anticipated to be a turn around within the next few years. However there has been much interest in growing proteas. The immediate planning is for plantings of 80 Ha of proteas within the next 18 months. Sourcing of plant material for this sizable increase in hectareage is a problem that the industry is currently addressing. The planned plantings are likely to increase if the supply of plants becomes more readily available.

There is already a potential shift by other export flower growers from their currently produced crops such as Roses and Hypericum due to viability issues with these crops. This could have a very positive effect particularly because of the high degree of skill and professionalism these producers possess.

To close off I will use the current catch phrase being used by our Export Flower Growers Association – *"Zimbabwe's still blooming"*.

Charla Difusión: "Participación en la Conferencia Internacional de Proteas en Melbourne, Australia"

Código: FIA-FP-L-2004-1-A-003

Cristina Gregorczyk O.
Junio 2004

VIVERO PROTEAFLORA (Melbourne, Australia)

Esta empresa fue creada por Peter y Rita Mathews en 1974. Inicialmente funcionó como vivero y productora de flores de corte especializada. En un comienzo estaban muy envueltos en desarrollar asociaciones locales e internacionales de proteáceas de modo de profundizar los conocimientos de esta incipiente actividad y también en expandir el mercado de las flores de corte de esta familia de plantas.

Hoy se han convertido en un vivero especializado en proteáceas ofreciendo plantas para el comercio, paisajismo y la industria de flor cortada.

Proteaflora es manejada por sus dueños, la familia Mathews. Trabajan con alrededor de 20 personas y producen unas 500.000 plantas al año. Trabajan con alrededor de 80 a 90 especies y variedades.

Esta empresa trabaja en la selección de cultivares nuevos tanto de Australia como del resto del mundo, de modo de ofrecer las mejores variedades disponibles a sus clientes. La selección clonal incluye parámetros como vigor, productividad, resistencia a enfermedades y a diferentes climas.

Este vivero cumple con auditorías externas y por ello con todas las exigencias del Protocolo Australiano de Acreditación de Viveros.

El proceso productivo se describe a continuación:

1. El vivero no cuenta con plantas madres permanentes, sino que el material vegetal se obtiene de aquellas plantas que fueron propagadas en la temporada anterior, de modo que las nuevas plantas propagadas serán la fuente de material para el siguiente año y así sucesivamente. De este modo se disminuye la probabilidad de propagar material enfermo. Las plantas de un año de edad que sirven de material de propagación son regadas vía goteros dos veces al día.
2. Los esquejes se procesan en una sala acondicionada para este fin. En una primera etapa se limpian del exceso de material y se uniforma su largo.
3. Luego el extremo inferior de los esquejes es sumergido en hormona enraizante, para luego ser transportados al invernadero de propagación donde las bandejas esperan listas para ser ocupadas.
4. Ahí comienzan su período de enraizamiento, que es variable según la especie, pero varía de 8 semanas a 4 meses. Este se realiza en invernaderos bajo plástico entre los meses de enero y mayo. El endurecimiento bajo malla sombreadora dura 2 semanas.
5. Dependiendo del propósito de las plantas, estas van a jardines, paisajistas o para plantaciones comerciales de flor de corte.

La legislación en Australia es muy estricta en el sentido de que el agua fertilizada residual de los viveros debe ser canalizada a tranques de acumulación especialmente diseñados. Esta agua es purificada, reciclada y reutilizada.

Este vivero funciona bajo las normas de ISO9001, por lo que existe una organización independiente que los controla periódicamente. De esta forma el vivero se mantiene a la vanguardia en el desarrollo del rubro.

Los costos para producir una planta bajo estas exigencias son altos, pero esto se traduce en una excelente calidad de sus productos. Además se da mucha importancia al cumplimiento de los plazos acordados con los clientes en relación a la entrega de los productos encargados.

Esta visita sirvió para comparar sistemas de producción distintos a los observados en otros países, tales como Sudáfrica y Nueva Zelanda.

MELBOURNE INTERNATIONAL FLOWER AND GARDEN SHOW

Una de nuestras actividades incluyó la visita al Show Internacional de Flores y Jardines de Melbourne.

Esta exposición se realiza anualmente en el Royal Melbourne Exhibition Building y acuden los principales viveros, jardines, institutos de educación, floristas individuales y agrupados, librerías y toda una gama de empresas especializadas en todo lo relacionado a los jardines.

El área se divide en dos sectores, en el exterior (al aire libre) se ubican los jardines y viveros con todos los complementos a la jardinería (muebles, fuentes, herramientas, productos agrícolas, etc.). Nos llamó mucho la atención la presencia de Copihue como una de las plantas en exhibición. En el interior del edificio se encuentra la exhibición de flores de corte con demostraciones de arreglos florales. En ambos sectores se realiza una competencia donde se premia a los mejores stands o bien a los mejores arreglos.

A continuación les ofreceré algunas fotografías de la exhibición más algunas fotografías de mis libros de referencia para demostrar como se usan estas flores.

Así es posible ver el uso de estas especies en arreglos florales para ser usados en situaciones de diferentes espacios.

Quisiera agradecer a la Fundación para la Innovación Agraria (FIA) que apoyó nuestra asistencia a este Congreso y viaje técnico, lo cual se suma a un grupo de iniciativas en el país para desarrollar la producción de estas especies.



GOBIERNO DE CHILE
FUNDACIÓN PARA LA
INNOVACIÓN AGRARIA

ANEXO 3

LISTA DE ASISTENTES A CHARLA DE DIFUSIÓN EN LA FACULTAD DE CIENCIAS AGRARIAS

PARTICIPACION EN LA CONFERENCIA INTERNACIONAL DE PROTEAS EN MELBOURNE, AUSTRALIA

FIA-FP-L-2004-1-A-003

LISTA DE ASISTENTES CHARLA DE DIFUSION EN UNIVERSIDAD DE TALCA

FECHA: 04/06/2004

Nº	NOMBRE	EMPRESA O CARGO	FIRMA	E-MAIL	TELEFONO
1	PEDRO P. SANCHEZ	Municipio de San Baudilio	Pedro P. Sanchez	pedro.sanchez@mailcity.com	621 563
2	MILVANO GONZALEZ	Licco Arquitecto	Milvano Gonzalez	BAIRPAGONZA@fiofio.com	774 908
3	JAI ME ALVAREZ	-	JAI ME ALVAREZ	j Alvarez@surnet.cl	
4	José H. Amador	Colibrero	José H. Amador		621 935
5	Adriano Arancibia	Asesor Técnico	Adriano Arancibia	milhuu@terra.cl	572 944
6	Paulina Concha	UTAL.	Paulina Concha	pdel pilarc@hotmail.com	547 724
7	Eglantina Flores	UTAL.	Eglantina Flores		
8	Fernando Rojas G	Equipo de trabajo S.A.	Fernando Rojas G	fernandorjasg@retur.com	08-608 3825
9	Concha Carrasco	U. de Talca.	Concha Carrasco	lolo13-3@hotmail.com	0864641
10	Rodrigo Herrera	U. de Talca	Rodrigo Herrera	rod-herrera@mixmail.com	224 511
11	Dellón A. Morales	Flores del Sur	Dellón A. Morales	florsur@chilozak.net	41/223758
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