

Newsletter

Royal New Zealand Institute of Horticulture (Inc.)



1990
No. 1
March

FROM THE EXECUTIVE OFFICER

Since the last issue of the RNZIH newsletter a lot has happened: A decade has ended; the 1990's have arrived; the Commonwealth Games have come and gone in a blaze of colour; the Whitbread fleet has come and with a little financial help from New Zealand, departed for South America; and the RNZIH sits at a number of crossroads.

Possibly never in the long history of the Institute have the winds of change blown as they are right now. Our role as an examination authority is about to undergo substantial changes. We will no longer gather examination fees in 1990: instead we will be funded by the Ministry of Education to examine students who are enrolled in approved courses at polytechs. It is too early to tell what effect this might have on our student numbers for this year's examinations, but when NEQA is fully operational later in 1990 we are likely to see even more changes.

What do our members hope we might achieve in the 90's? Plant conservation, Garden History, Notable Trees and the Loder Cup are just some of the activities that we need to consider our stance on with some care.

In Nelson from 4-6 May YOU will have the opportunity to help shape the RNZIH for the final 10 years of the century: the Annual Conference and AGM is the perfect forum for the expression of members' ideas and aspirations for the future of our Institute. Registration forms are enclosed with this newsletter and a big turnout of members would be a great way to start the new decade.

I look forward to seeing many of you in Nelson.

Dave Cameron

SIR VICTOR DAVIES AWARD

The Royal New Zealand Institute of Horticulture has established an award designed to encourage young people to increase their knowledge of plants. The award has been established in honour of the late Sir Victor Davies, one of the most outstanding plantmen New Zealand has produced.

The Sir Victor Davies Award is awarded annually to young people under the age of 30 years who have demonstrated through their work an outstanding knowledge and ability in some of the broad areas of the cultivation, propagation, preservation, botanical knowledge of and writing about trees and shrubs, and plants in New Zealand.

The first award will be made at the AGM of the RNZIH in May this year. Applications should be sent to the Executive Officer of the RNZIH, PO Box 12 Lincoln University, Canterbury.

CONDITIONS

1. Personal applications or nominations will be received annually by the Royal New Zealand Institute of Horticulture and a closing date will be advertised when notice is given.
2. The recipient does not have to be a member of the RNZIH.
3. The recipient must be under the age of 30 at the time of nomination.
4. A Curriculum Vitae or similar document outlining the work of the applicant or nominee will be required.
5. The award will be made at the AGM of the RNZIH.
6. The RNZIH reserves the right not to make an award if in its opinion the award should not be made in that year.
7. The award shall be in the form of a wall plaque and a suitable gift

RNZIH CONFERENCE 1990

4th - 6th May

"NELSON THE DIVERSE DISTRICT"

The 1990 Conference is at Nelson Girl's College

AGENDA

FRIDAY 4th Executive meeting, official opening and key note address

SATURDAY 5th AGM

Notable & Historic Trees

Bus trip to places of horticultural interest

Banks Lecture - Mr Guy Salmon

SUNDAY 6th Three key note addresses

Bus trips to a) organic farm OR

b) Riwaka Research Station - New Crops

See registration form enclosed with this newsletter

The Executive Officer has a new direct phone line; (03)252-923, which is also a FAX line. General enquiries can still be made through the RNZIH office on (03)252-811.

Publications Update

In early 1989, the RNZIH National Executive carried out a comprehensive review of Institute publications. This resulted in the replacement of the Bulletin and Annual Journal with this Newsletter, and a twice-yearly Journal called "Horticulture in New Zealand."

Enclosed with this newsletter is the first edition of the new journal. It is of a similar format and content to the old Annual Journal, but with fewer articles, reflecting its twice-yearly publication. Horticulture in New Zealand will be published in February and August of each year, with final copy dates being 30th September and 30th April respectively. Along with changes to the journal will come a change in editor. Jude Petheram from Nelson has agreed to take over as editor from 1991. She is well qualified for the task, having extensive experience in landscape design and amenity horticulture, as well as writing gardening columns for several newspapers and running a weekly radio talk-back on gardening. I'm sure the journal will go from strength to strength under her guidance.

Mike Oates

Deadline for the next newsletter - copy due 1 June.

NZ SOCIETY FOR HORTICULTURAL SCIENCE CONVENTION 1990

Heretaunga C.I.T., Trentham, 28-29 August 1990

Environmental Horticulture - Call for Papers

For the first time the NZSHS is including a full afternoon programme on the wide and all embracing topic of Environmental Horticulture.

Allan Jolliffe, Chairman of the RNZIH is co-ordinating the afternoon.

"This is the ideal opportunity for professionals in the environmental horticultural field to present information on this exciting and challenging field. With advent of urban redevelopment, Resource Manage-

ment Law reform, Conservation Law Reform and Protected Areas Law Reform additional opportunities will be presented for more work in this field," says Mr Jolliffe. "Tourism is one of our biggest overseas income earners as people visit New Zealand to experience our natural and man-made environment. In this area environmental horticulture is even more important."

All workers involved in horticulture/horticulture

science, members and non-members of the NZSHS are encouraged to submit papers for the conference.

TITLES AND ABSTRACTS ARE REQUIRED BY 13 APRIL 1990 and can be sent now to:

Donald Irving

MAF, Levin Horticultural Research Centre

Private Bag, Levin

PH (069) 87059 FAX (069) 83578

DUTCH ELM DISEASE IN AUCKLAND

Horticulturists throughout New Zealand were stirred by the recent identification of trees in Auckland infected by Dutch Elm Disease. The reaction was one of urgency to control the situation.

Dutch Elm Disease is one of the best known tree disease in the world and there is a vast literature on the subject. The causal organism, *Ceratocytis ulmi*, a fungus, is generally thought to be of Asian origin; this conclusion is largely based on the relative resistance of most of the Asian elms. The disease was first described from Belgium and the Netherlands about 1920, and by 1930 had spread throughout most of Europe. It was first recorded in the eastern United States in 1930, having been presumably transported there on veneer logs with bark attached. By the early 1970's it had spread westwards to the Pacific States. The disease is generally referred to as Dutch Elm disease because so much of the early work on it was done in Holland.

The effect of Dutch Elm Disease on elms in Europe and North America has been devastating. Estimates of the exact amount of damage vary, but it is widely recognised that close to 90% of the elms in the United Kingdom and North America have succumbed, whereas in Europe the figure appears closer to 50%. The death of these trees has certainly changed the landscape.

The first symptoms of Dutch Elm Disease appear as sudden or prolonged wilting of the leaves of individual branches or of the entire tree. Wilted leaves frequently curl, turn yellow then brown and finally fall off the tree prematurely. The disease usually appears first on one or several branches and then spreads to other portions of the tree. Such trees may die gradually branch by branch over a period of several years, or they may recover. Sometimes,

however, entire trees suddenly develop disease symptoms and may die within a few weeks. Usually trees that become infected in the spring or early summer die quickly, while those infected in late summer are much less seriously affected and may recover unless they become reinfected. When the bark of infected twigs or branches is peeled back brown/blackish streaks or mottling appears on the outer wood. In cross section this browning appears as a broken or continuous ring in the outer rings of the wood.

The fungus is transmitted from tree to tree by various species of bark beetles. The principal vectors are *Scolytus scolytus* (in Europe), *Scolytus multistriatus* (in Europe and North America) and *Hylurgopinus rufipes* (in North America). Adults and larvae of *Scolytus multistriatus* were found on trees infected by Dutch Elm Disease in Myers Park in Auckland. These beetles breed under the bark of dying or dead elm branches and stems and when the adults emerge they carry in and on their bodies the spores of the fungus. Before they breed the freshly emerged beetles feed in the crotches of living, vigorous elm twigs, and in this manner the tree is infected with the fungus via the feeding wounds. There are generally two generations of the bark beetles per year.

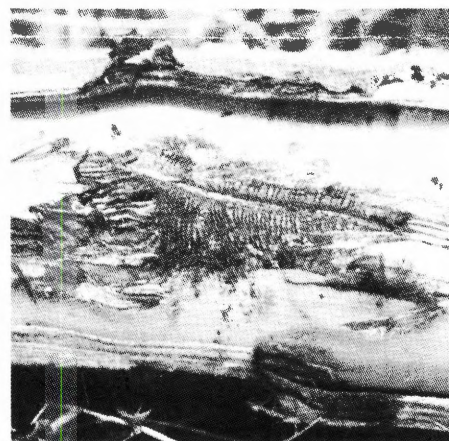
Generally elms of pole size (ca 20 cm dbh) or greater are susceptible to the disease but sometimes smaller trees become infected. Seedlings are not known to be attacked.

The Ministry of Forestry is the authority which is dealing with the operations to try to eradicate the disease. They have circulated brochures throughout the Auckland area, and publicised the symptoms

through newspapers etc. The object of a control strategy is to destroy the bark beetles that transmit the disease and to remove further potential breeding material. This is best accomplished by felling the trees and burning them.

In Myers Park in Auckland a total of ten large elms were removed, totalling 120 tonnes. It is a very sad loss, and Parks Department staff are very nervous over the few very valuable trees in the Albert Park area, which would leave a horrible void should they become infected. Isolated infections are still being found in single or small groupings, all within the Auckland city area - apart from three trees on the North Shore. It is suspected that the disease was introduced on imported timber.

This information comes from a report by John Bain, and John Jury, of the Auckland City Parks and Reserves Department.



The disease is transmitted from tree to tree by a small bark beetle, Scolytus multistriatus. Newly emerged beetles feed on the young, green twigs of healthy elms and introduce the fungus via the feeding wounds. The fungus effectively blocks the water conducting tissues causing the foliage on infected twigs and branches to wilt. The wilted leaves frequently curl, turn yellow then brown and finally fall from the tree prematurely.

After feeding on the twigs the beetles lay eggs in branches that have been killed by the fungus. The adult beetles construct longitudinal tunnels between the bark and the wood. When the grubs or larvae hatch they tunnel out at right angles from the parent tunnel. This results in a characteristic pattern under the bark.

NZ Arboricultural Association

Now that New Zealand has education in arboriculture based at the Waikato Polytechnic it has become important to appraise the standards and professional standing of the arborist. Advancing the skills and standards of arboriculture can only be achieved by unity at national level, thus the seed of the Arboricultural Association was set.

What should be the principal aims of such an association?

1. To advance the study of arboriculture in NZ. Much work has been undertaken in the northern hemisphere, however we have our own special problems to address, such as climate, growth, protection of exotic and native species.
2. To advance knowledge of, and foster greater interest in, trees by publishing information, organising exhibitions, stimulating research and creating public awareness. Special consideration should be given to children and to the expansion of Arbor Day.
3. To raise the standards of the practice of Arboriculture. The implementation of a professional body which will advise on safety codes and procedures. This should include representation from the Department of Labour, local government, educational and commercial sources.
4. To assist in the balanced training of students in Arboriculture. Where are the needs? What technical level is required by local government and how important is it to set up a National Centre of Arboricultural Education?
5. To co-operate with other bodies which have similar aims. These include the RNZIH, Auckland Tree Council, Landscape Guild and so on.

Other important aspects the Arboricultural Association will have to address are:

1. The protection of trees and in particular to look at the Resource Management Bill and lobby Government where appropriate so that standard procedures can be put into place.
2. Workmanship is important. The new British standard 3998 (1989) deals with important aspects of pruning. A priority of the Association is to make sure that all local authorities and commercial companies are aware of standards of work.

With these thoughts in mind, an Arboricultural Conference was held at the Waikato Polytechnic in October 1989. One of the main objectives was considering the proposal to form an Arboricultural Association in New Zealand.

The sixty delegates present were all unanimous that an association was needed and the first priority was to select a committee; the members are as follows
Chairman - Martin Herbert
Vice-chairman - Eddie Chignell
Treasurer - Bob Cowan
Assistant Treasurer - John Wakeling
Public Relations - Marcus James
Secretary - John C Jury
South Island liaison - Alex Davies

The name was settled as the New Zealand Arboricultural Association and it was decided that affiliation with the RNZIH was the sensible route to take. This would still mean that arborists would maintain independence and autonomy but not have the expense of setting up their own organisation. Fees for the new

association have been set at \$30 for the 1989-90 year, although after the AGM in Nelson (May 4-6) there will be a clearer picture of administrative costs.

In Nelson a varied and exciting weekend is being planned, (forerunner of an annual event), with Peter Gadgil from the Forest Research Institute talking on tree diseases in amenity trees, also workshops on cable bracing. We will also arrange demonstrations and some competitive carnival-like action.

Should you be interested in becoming a member of the NZAA, please contact the secretary:

John C Jury (Arborist)
Parks & Recreation Dept
Private Bag
Wellesley St, AUCKLAND 1

Martin Herbert

A Simplified Structure for Horticultural Education

David Lythe, Carrington Polytechnic

A working group convened by the New Zealand Society for Horticultural Science (Inc) has recently submitted an outline proposal for a restructuring of horticultural qualification to the newly established National Education Qualifications Authority. The working group was widely representative with membership from industry, RNZIH, the Department of Education as well as secondary school, polytechnics and universities.

In 1986 a previous working group had circulated a discussion paper, among other things, recommending that teaching institutions and examining authorities promote further cross-crediting to meet student needs. Since then issues of post-compulsory education have been strongly debated nationwide, and Government has moved to implement the major changes foreshadowed in Learning for Life. These changes included a major rethink of national certification, a policy area greatly influenced by the 1987 visit to New Zealand of Mr Tom McCool, the chief executive of the Scottish Vocational Education Council.

Learning for Life announced the establishment of a National Education Qualifications Authority (NEQA), to provide an across-the-board approach to national qualifications. NEQA has the potential to achieve greater rationalisation and portability of qualifications. In the light of these developments the 1989 working group's aim was to address issues of articulation and credit transfer in horticultural education across all sectors and to prepare proposals for NEQA. The working group recognised that any new structure for horticultural qualifications must be acceptable to all sectors and should allow for differences in approach. Any new structure would have to provide for a variety of pathways and minimise blockages to student progress.

The conclusion of the working group is that there should be an **open catalogue of nationally validated units of study with standard descriptor format and institutional packaging of units leading to named qualifications; with units of an average 40 hours student effort.**

The working group would see all courses being sub-divided into common-sized units or modules. All modules would be written in a similar format specifying student learning outcomes and any entry requirements. All modules could therefore be linked in an open catalogue but students wishing to achieve a named qualification would be required to successfully accomplish a specified package of core, optional and specialist modules.

Notes from the District Councils. . .

The Wellington District Council will be holding its annual Galloway lecture in March. Ron Flook will talk at this public lecture on Trees.

The first lecture for the year for the Auckland District Council is on 15th March. Dr Keith Hammett will speak and show slides about a world trip he made last year, which took him to Mexico, USA, Britain, Denmark, Holland and Czechoslovakia. The impetus for the trip was a large flower show held in Seattle to mark the centenary of Washington State. Dr Hammett was one of a number of international guest speakers. Forthcoming meetings include a talk by A. Jellyman on plants of the Himalayas and Kay McMath on objective descriptions of flower colours.

The following list gives the secretaries of the various District Councils, and their addresses.

New Plymouth: Mrs J Gleeson, 3 Rogan St
Invercargill: Mr WT Wright, Southland Hospital Grounds, Kew
Wanganui: Ms Pam McDonald, 31 Ikitara Rd, Wanganui
Motueka: Mr P Smale, 22 Atkins St
Tauranga: Mrs JA Swinbourn, 12 Tilby Drive, Matua
Auckland: Mr RA Price, 133 Luke St East, Otahuhu
Hawera: Miss EA Free, 23 Egmont St
Whangerei: Mr K Young, PO Box 1530
Dunedin: Mr RM Scott FRIH, PO Box 56
Christchurch: Mr ED Moyle FRIH, 6 Winslow St, Christchurch 5
Gisborne: Poverty Bay Hort. Soc., PO Box 1275
Hamilton: Mrs NM Allen, Pukeroro, RD 3
Picton: Mrs D Elwood-Smith, 46 Hampden St, Picton
Lower Hutt: Mr M Burtenshaw, 14 Dyer St, Eponi

All modules would need to be nationally validated (an industry-led process) and institutions or agencies wishing to offer modules would have to submit to rigorous accreditation and moderation procedures.

The working group has recommended a standard unit of 40 hours of student effort, which is totally flexible in terms of learning mode, i.e. includes formal hours such as lectures, tutorials, laboratories and practical; and informal hours such as directed study and supervision. This has advantages in being a manageable size and gives flexibility for coupling into multiple modules. At advanced levels such as for University degrees, multiple modules may be arranged into papers. While full units would be the standard, increased flexibility could be achieved with half units. A system based upon modules would be very suitable from senior secondary school through to University and allow credit transfer and accumulation. The working group has also attempted to devise a post-compulsory education and training (PCET) framework which could sub-divide the open catalogue of modules by level and certification to indicate career pathways. The framework suggested allows for the most diverse spectrum of attainment from hand-on to technical management skills and research.

The working group recognises that there must be room for diversity in named qualifications and that this is easily possible within an overall framework of national and regional, core and optional modules or units of study.

The framework recommended has as its central core, craftsperson modules concerned essentially with production and implementation. The technician level can then expand that core some way into all skills and academic areas. Finally the horticultural technologist undertakes education and training of the highest academic standard and to the greatest skill depth. The working group considers there to be three broad categories of qualifications: craftsperson, technician, and technologist; four general areas of learning: finance, marketing, production, labour; and five work functions: implementation, recording, control, planning and forecasting.

The working group considered that all validated modules would fit somewhere within the framework and that a schedule of all modules, by level, would be available to all students. Institutions offering named qualifications would specify a package of core and optional, general and specialist modules. The group considered the modular approach to have particular attraction to those in the industry wanting to "dip-in" not for an award but for updating or personal interest.

The Society for Horticultural Science has requested from the NEQA early consideration of this proposal and adequate resources for it to be fully developed and implemented.

APPENDIX

The future role of the RNZIH in horticultural education under the new structure to be established by NEQA is not yet clear.

The Examining Board and the National Executive have discussed various possibilities and NEQA (through the Ministry of Education) has been advised that the RNZIH will be willing to play a part in the "validation" of courses and/or evaluation and teaching institutions which seems likely to be required in the future.

The existing examination work of the Institute is certain to undergo substantial changes, and it may be that the existing RNZIH certificates and diplomas will be phased out as qualifications. If this is to happen it will take place over a number of years as we have been advised by the Minister of Education that provision will be made for students to complete qualifications which they have already commenced. However it is likely that this "transition phase" will not extend beyond the minimum time in which a student could be expected to complete a qualification.

It is quite clear that in 1990 our examination operation will continue as in previous years, except that the Ministry of Education will cover the cost of examination fees for students who have paid tuition fees to polytechnics for RNZIH subjects.

I expect to have further information available later in the year.

Dave Cameron

Congratulations to all who have completed horticultural certificates and qualified in November 1989. . .

NATIONAL CERTIFICATE IN HORTICULTURE (AMENITY HORTICULTURE)

Robyn Shirley Abernethy, AUCKLAND; Michael John Alexander, AUCKLAND; Stuart Gregory Barton, HAMILTON; Caroline Burden, ROTORUA; Wayne Frederick Butson, DUNEDIN; Anita Joyce Catchpole, WELLINGTON; Andrew William Childs, KAIAPOI; Christine Ruth De Waal, AUCKLAND; Richard John Doyle, CHRISTCHURCH; Tina Louise Dyer, AUCKLAND; Maureen Anne Elliott, PALMERSTON NORTH; Earl McDonald Fergus, AUCKLAND; Martin Aric Gorzeman, CHRISTCHURCH; Martin Christopher Herbert, HAMILTON; Adrienne Maree Jones, TAURANGA; Marian Winifred Jones, AUCKLAND; Jayson Andrew Kelly, DUNEDIN; Rory Logan, DUNEDIN; Kevin Robert Luff, WANGANUI; Robert George Manderson, AUCKLAND; Ruth McLean, AUCKLAND; Dianne Joan McMillan, WELLINGTON; Paul David Murray, AUCKLAND; Michael Ian Prestidge, HAWERA; Antonia Wilhemina Purdy, AUCKLAND; Lauren Gayle Riley, AUCKLAND; Murray John Rixon, OTAGO; Russell Graham Roberts, HAMILTON; Irene Elizabeth Ross, BLENHEIM; Adrienne Sever, WELLINGTON; Simon John Stopford, FEATHERSTON; Joanne Leslie Thomson, WANGANUI; Peter Rutherford Thomson, TIMARU; Jane Sylvia Vermeren, HAMILTON; Rodney Lawrence Whearty, CHRISTCHURCH; Beryl Edith Wilkes, CARTERTON

NATIONAL DIPLOMA IN HORTICULTURE (AMENITY HORTICULTURE)

Duncan Alexander Bums, NELSON; John Duncan Burrell, HAWKES BAY; Anne Gwendolen Butler, LOWER HUTT; Terry David Canton, LOWER HUTT; Jeremy Mark Jackson, UPPER HUTT; Chris Joseph Wilkinson, UPPER HUTT; Helen Mary Ballinger, HAMILTON; Shaclagh Ann Fleming; Anthony Stephen Felix Koretz; Karen Philippa Mann; Brian James Milne.

NATIONAL CERTIFICATE IN HORTICULTURE (FRUIT PRODUCTION)

Keith Gilbert Brooker, TAURANGA; Deborah Joan Duncan, HAVELOCK NORTH; Karen Dawn Emms; Stephen Paul Luketina; Ernest George Neilson, GISBORNE; Jennifer Joan Perano, TAURANGA; Deborah Fayc Rogers; Sheila Ann Stapleton, GREYTOWN.

NATIONAL DIPLOMA IN HORTICULTURE (FRUIT PRODUCTION)

Sarah Jane Dovaston; Richard Low Collin, HASTINGS

NATIONAL CERTIFICATE IN HORTICULTURE (VEGETABLE PRODUCTION)

Marilyn Ann Boniface, INVERCARGILL; Isla Louise Ann Hayes, AUCKLAND

NATIONAL DIPLOMA IN HORTICULTURE (VEGETABLE PRODUCTION)

Marinus Peter Van Tilburg, PUKEKOHE, JM Follitt, (with Honours)

NATIONAL CERTIFICATE IN HORTICULTURE (NURSERY PRODUCTION)

Brian Mark Ashton, PALMERSTON NORTH; Janet Mary McHard, WAIHI BEACH; Rita Evelyn Olliver, WANGANUI; Christopher John Field Scott, UPPER HUTT; Roger Jocelyn Springett, HAWERA

NATIONAL DIPLOMA IN HORTICULTURE (NURSERY PRODUCTION)

Graeme Kenneth Anderson, OAMARU; Margaret Auger, HAMILTON; Karen Hazel Haynes, AUCKLAND; Geoffrey Paul Canham, PALMERSTON NORTH; Tracey Clare, GISBORNE; Patricia Mary Luddon, DUNEDIN

NATIONAL DIPLOMA WITH HONS (NURSERY PRODUCTION)

Vicky Anne Hodder, ROTORUA; Robert Nisbet Smith, GISBORNE

CERTIFICATE IN HORTICULTURAL THEORY

Sara Jane Brill, RAROTONGA COOK ISLANDS; Margaret Lynne Carey, WANGANUI; Lesley Jean Friend, WELLINGTON; Carolyn Ann Fry, CHRISTCHURCH; Jennifer Anne Hall, WELLINGTON; Gurli Hansen, NELSON; Janice Callum Heine, LOWER HUTT; Craig Anthony Homby, HAWERA; Susan Mary Hoskin, CHRISTCHURCH; Bernard Winston Keams, NELSON; Brian Anthony McWilliams, MASTERTON; Jill Millar, NEW PLYMOUTH; Suzanne June Nelson, MILTON; Anita Elizabeth Patterson, HAMILTON; Jennifer Ann Peden, HAMILTON; Curcino Barnabe

Pires, HAMILTON; Bruce Stanley Sharp, HAMILTON; Alexander Colquhoun Smeaton, MORRINSVILLE; Diana Margaret Van Der Plas, CHRISTCHURCH; William Cornelis Van Der Ende, CHRISTCHURCH; Christine Walker, WANGANUI; Graeme Ross White, NELSON; Lorraine Williams, NEW PLYMOUTH; Steven Richard Williams, MOSGIEL; Veronica Mercia Stedman, BRISBANE AUSTRALIA

HORTICULTURAL SALES CERTIFICATE

Helen Kay Eaves, RANGIORA; Rosalie Ann Henry, HAMILTON; Jason Paul McCarthy, MASTERTON; Suzanne Audrey Stokes, MURUWAI BCH WAIMAUKU

CERTIFICATE IN HORTICULTURAL MANAGEMENT

Stephen Grant Anderson, CAMBRIDGE; Gail Sheila Margaret Banks, ALEXANDRA; Pamela Fay Beaton, CROMWELL; Steven George Campbell, TAURANGA; Andrew Nicholas Coombs, HAMILTON; Niall Douglas Fleming, KERIKERE; Dorothy Claire Gaze, NELSON; Sven Giles-Hansen, TE PUKE; Philip Allan Hesson, ALEXANDRA; Graham Peter Mackie, HAMILTON; Aubrey John McRae, ALEXANDRA; Mechthilda Anna Maria Melis, NELSON; Phillip John Panting, CLYDE; Dennis Paulin, ALEXANDRA; Glenys Mary Pellow, AUCKLAND; Kaye Susan Sangster, BLENHEIM; David Harry Douglas Taylor, ALEXANDRA; Mark Edward Theobald, NELSON; Brett Charles Turner, HAMILTON; John Peter Wells, NELSON; Paul Thomas Devine, NELSON

CERTIFICATE IN PARKS PRACTICE (ARBORICULTURE)

Michael David Maran, AUCKLAND; William Lewis Veale, TE AWAMUTU

CERTIFICATE IN PARKS PRACTICE (GROUNDSKEEPING)

Gordon Robert Abercrombie, OAMARU; Grant Nanervell Bawden, CHRISTCHURCH; David Bostock HASTINGS; Stuart James Charles, AUCKLAND; Stephen John Colman, AUCKLAND; Daryll John Jensen, HAWERA; Paul William McGahan, AUCKLAND; Ian Philip O'Connor, WELLINGTON; Gerald Winsley Price, CHRISTCHURCH; Brent Russell Stone, WELLINGTON; Terry Stephen Walker, DANNEVIRKE

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