

Horticulture

in New Zealand

Bulletin of the Royal New Zealand Institute of Horticulture (Inc.)



32

Winter

1984



BULLETIN OF THE ROYAL N.Z. INSTITUTE OF HORTICULTURE

NUMBER 32, WINTER, 1984

Editorial	1
Retirement of National Secretary	3
Items of Interest from the A.G.M.	4
Notable and Historic Trees Committee Report	6
Examining Board Report	8
Diploma and Certificate Awards	12
Hollard Gardens	15
District Council News	19
Bird Catcher Plant	23
Welcome to New Members	24

Student Section:

Editorial	27
Weather in Your Garden	28
Dothistroma, Needle Blight	31
Genus Jovellana	35
Dry Walling	36
Application Technology in Plant Protection	39

Cover photo: The First Annual Meeting of the R.N.Z.I.H.
Taken from the N.Z. Fruitgrower and Apiarist
September 16th, 1924

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC)

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| <i>Patron</i> | His Excellency the Governor-General |
| <i>Vice-Patron</i> | The Hon. Duncan MacIntyre, Minister of
Agriculture and Fisheries |
| <i>President</i> | Mr R.J. Ballinger, OBE, JP, B.Ag. Sc. |
| <i>Chairman of Executive</i> | Mr J.O. Taylor, MBE, NDH, AHRIH, FIPRA |
| <i>Chairman of Examining Board</i> | Dr R.C. Close, M.Sc., Ph.D. |
| <i>National Secretary</i> | Mr P.W.N. Neeson
P.O. Box 12, Lincoln College |
| <i>Annual Journal Editor</i> | Mr M. Oates |
| <i>Bulletin Editor</i> | Mr D.L. Shillito |
| <i>Student's Editor</i> | Mr N.W. Owers |

The Editor welcomes articles, letters and news items for consideration of publication. Contributions should be addressed to the Bulletin Editor, P.O. Box 12, Lincoln College.

Views expressed are not necessarily those of RNZIH.

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EDITORIAL

Well another bulletin off to the printer. This is my eighth edition of 'Horticulture in New Zealand', and its a good time to look back at all the articles that have been contributed by members and others. I wouldn't go as far as to say that there has ever been an over supply, but there are members who are doing an excellent job at hunting down or writing articles and sending them in for publication. I would like to say many thanks to all who have contributed and hope some more people will do the same. Please give it some thought. I know people read articles of interest and pass the comment "now why don't they print articles like that in the Institute's bulletin". We will, just send them in.

Now that my quarterly plea for articles is over, which is about the most regular feature in this publication from Nick and myself, a few words about this issue. As usual in the Winter Bulletin we have a short report on the recent Annual General Meeting held in Wellington and reports from the Notable and Historic Trees Committee and the Examining Board. If you are unsure what these bodies do I recommend you read these reports.

Ashley Foubister, the National Secretary retired recently, and Neville Neeson has taken over this position. We all wish you the very best in your retirement Ashley, refer to page three.

The Queen Elizabeth II National Trust has written an article on the Holland Gardens which I hope you will find interesting. They will be doing a follow up article in the Spring Bulletin outlining in more detail the work of the Trust in areas of Horticulture, protection of forest remnants and gardens. These articles I hope will make use all aware of the Trust's work and ways that it can help us.

Even though the weather seems to have settled into a typical winter routine here in Christchurch, (without snow on the alps, however) its very pleasing to see in my garden Winter Sweet, *Chimonanthus* in full flower filling the garden with its scent. A shrub I advise everyone to have, and snowdrops, *■lanthus*. Spring I'm sure is not far away.

Good reading.

- David Shillito
Editor.

COVER PHOTO:

If any member can identify anyone in this picture, could they please write to the editor. Their are a great many people that we do not know who they are.

HORTICULTURAL EXPERIENCE REQUIRED

I have received two letter from Horticultural Students in Australia who as part of their studies must work for twelve weeks in a particular field of horticulture. Both these students wish to obtain this experience in New Zealand. The first is:-

Mr Adrian Parsons, 22 Epping Street, East Malvern,
Victoria, 3145, Australia.

Mr Parsons is a second year student at Burnley Horticultural College, Victoria. He is particularly interested in working in containerised nursery production, preferably on a whole-sale property. He has experience in retail nursery work, wholesale nursery work and turf management experience. This work experience is to start in the late October period of 1984.

I have copies of good references for Mr Parsons if anyone would like to refer to them before contacting him.

The second is:-

Mr Martin Neville, 20 Park Lane, Mt. Waverly,
Melbourne, Victoria 3149, Australia.

Mr Neville is also a second year student at Burnley Horticultural College. The field he would like is three months work in any area concerning Park and Recreational Management, from October 1984 to February 1985.

If any of our readers could assist these two students in obtaining work or know of work that fit their needs could they please contact them. I know they would be most grateful.

- David Shillito
Editor

If you can actually count your money then you are not really a rich man

- Paul Getty

RETIREMENT OF NATIONAL SECRETARY



*Retiring Secretary R.A. (Ashley) Foubister (left)
with our new Secretary P.W.N. (Neville) Neeson.*

Mr Foubister took over as Secretary of the Institute and Examining Board in May, 1977, at a time when there had been three Secretaries within a period of 12 months. The office had been transferred to Lincoln College and sorting out systems and settling in was not easy. Mr Foubister steadily brought the affairs of the Institute back into line and he gained immense respect from staff, colleagues, students and members alike.

We extend the best of wishes to him and Mrs Foubister for a long and happy retirement.

To assist Mr Neeson in his new role as Secretary of the Institute and of the Examining Board is Mrs Enid Reeves (Examinations Assistant), and Mrs Aileen Taylor (Typist).

ITEMS OF INTEREST FROM THE A.G.M.

The 1984 Annual General Meeting was held in the R.A. Vance Stand at the Basin Reserve on Saturday 19th May. Over 90 members attended, and the facilities offered by the venue were excellent. The floral decorations and overall preparation of the conference rooms were indeed a credit to Wellington District Council as host of the 61st A.G.M.

The programme was well thought out and provided abundant interest for members from business sessions, through to talks and field visits.

Mr J.O. Taylor retiring Chairman of the National Executive chaired the meeting and paid tribute to Wellington District Council for work done by the local members concerned.

In opening the meeting Mr Taylor paid tribute to deceased members, and extended a warm welcome to all delegates. Following a brief report on the action taken on 1983 Conference remits, the Chairman presented his Annual Report, which was published in Bulletin No. 31. The report and Annual Accounts were opened for discussion and formally adopted.

Dr R.C. Close then presented the Examining Board report, which is printed in this issue of the Bulletin.

Opening Address

The formal opening address was presented by the Commissioner for the Environment Mr Ken Piddington who spoke of "The Greening of New Zealand". Mr Piddington's address was well presented, well received, and it will be published in the 1984 Annual Journal.

Award Presentations

Associate of Honour (A.H.R.I.H.) Awards were made to:

Dr Eric James Godley
Mr Eric Toleman
Mr Gerald Pilkington Ward C.B.E.

In presenting the Awards Mr Ballinger paid tribute to the individual contributions made by the recipients to horticulture.

The Plant Raiser Award was made to Mr Felix Jury and the Award was made for:

<i>Camellia</i>	'Waterlily'
<i>Magnolia</i>	'Iolanthe'
<i>Magnolia</i>	'Serene'
<i>Phormium</i>	'Yellow Wave'
<i>Rhododendron</i>	'Felicity'

Remits

Two remits as published in Bulletin No. 31 were presented for consideration.

Remit No. 1 from Bay of Plenty District Council concerned about advance payment of membership subscriptions, and supported the policy statement issued earlier by National Executive. The policy was explained and following some discussion the remit was adopted.

Remit No. 2 from Auckland District Council proposed the introduction of an award for unique contributions to the advancement of Horticulture in New Zealand. Miss J. Dingley and Mr P. Jew spoke in support of the remit, which was carried unanimously. Mr Jew advised that following discussion with members of the late Sir Victor Davies family, their approval to name the award after Sir Victor had been given. Accordingly the name "Sir Victor Davies Award" was formally adopted.

ELECTION OF OFFICERS

There was no requirement for a postal ballot to fill the four vacancies on the National Executive for 1984/85. Three nominations only were received and nominees automatically became elected. The one vacancy remaining may be filled by appointment if the Executive considers it necessary. National Executive members names were published in Bulletin No. 31, and were confirmed by A.G.M. Other office bearers were elected as follows:

Patron	- His Excellency the Governor General
Vice Patron	- The Hon. Duncan MacIntyre, Minister of Agriculture & Fisheries
President	- Mr R.J. Ballinger
Vice-President	- Dr E.J. Godley

NOTABLE & HISTORIC TREES COMMITTEE

ANNUAL REPORT

Since the Annual General Meeting in Auckland last year significant trees have been lost in most areas. In Auckland a tree, registered by the local council was inadvertently entered on the wrong section of the District Map and before any stay of action could be imposed by the Council the tree was cut down by the developers, Mainzeal. In Christchurch a tree at Park Terrace, registered on the District Scheme was lost through a breakdown with the architects and developers for the site. In Wellington, apart from the saga and subsequent loss of the Norfolk Island pines at Eastbourne, there was the loss of a significant Northfolk Island pine at Plimmer's Steps.

In all these cases, if identification, registration and labelling of these trees had been carried out under the Royal New Zealand Institute of Horticulture scheme there is a chance they would still be here today. The Plimmer oak, well documented and registered and labelled stands, but the Norfolk Island pine in the same vicinity unregistered has gone.

Your committee for Notable and Historic Trees has had its scheme placed before the Commissioner for the Environment, the Minister for the Environment, and yes, in Australia too, at a meeting I attended with representatives from all States engaged in identification, and presentation of Australia's significant trees. In all cases the R.N.Z.I.H. scheme is highly thought of.

In this, the Year of the Urban Tree, your committee has been active in placing proposals before the Minister for the Environment, proposals which see a permanent place for the R.N.Z.I.H. in the preservation of New Zealand's significant trees and which modify some of the proposals being submitted by Mr Hogan of the Urban Tree Association in Auckland, which in our view include a number of impractical recommendations. We have not been helped by the fact that in the Auckland area information given to the Commission for the Environment was that the R.N.Z.I.H. had not got their scheme off the ground in that area. This has not been through lack of effort by this committee. Our greatest problem is in motivating Tree Registration Officers and this is born out by the fact there are 45 trees out with Tree Registration Officers awaiting attention. Some have been waiting two years and money has been received for their registration. It is an embarrassing situation. I believe if TRO's were paid officers and had a small dynamic group to help support them, then preservation of New Zealand's significant trees would gain greater momentum.

Your committee has prepared a booklet on Guidelines for Tree Registration Officers, a document mainly due to the work of Conrad Pharazyn. Ron Flook has most of the information on our registered trees ready for national recording on computer. Work in processing Mr Burstall's lists continues and it is intended that during the coming year we will continue to put emphasis on this side of our work. Wilf Watson has completed a survey of regional map areas or zones. Considerable effort has been put into streamlining committee procedures.

On the legal side, following a meeting in Wellington of the chairman and myself with National Executive members, a letter was forwarded to the Commissioner for the Environment confirming our belief that identification registration and labelling of New Zealand's significant trees is necessary to public awareness of their importance and the need for their preservation. Any proposed appointment of Tree Registration Officers for local or regional bodies needs to operate on a national basis and the R.N.Z.I.H. is and should provide this national umbrella. Maintenance problems associated with registered trees must also be considered.

In 1977 I was given the task of getting this scheme off the ground. This year I retire from the National Executive but will stay on the Notable and Historic Trees Committee. I believe it is in sound hands under the chairmanship of Ron Flook, and the team comprises a very skilled, experienced and dynamic group. However the work is fast outgrowing the available time that members can put into it and it is becoming apparent that permanent officers are required. In this Australia has taken the lead. Lack of actual active support from R.N.Z.I.H. members continues to be of concern and is perhaps why so much work falls on the main committee. The National Executive needs to examine and pursue the issue of paid officers in the next year.

Finally, I would like to say that public awareness of the need to recognise and preserve our significant trees is fast becoming accepted. This has been, in no small way, due to the Notable and Historic Trees scheme of the R.N.Z.I.H. Local bodies have in many cases been alerted to the need to alter their ordinances. There is now an acceptance of our scheme, from organisations such as Historic Places Trust, QEII Trust and the Environmental Council and by the Commission for the Environment. In all of these the name of the R.N.Z.I.H. has been brought before people and it is this promotion which is so important to the future well being of the Institute.

I wish to place on record my sincere thanks to all those who since 1977 have worked so hard to make this scheme successful. They are - Chris Howden, David Rowe, Rone Flook, Sue Smith, Di Menzies, Lita Barrie, Donal Duthie, Conrad Pharazyn, Wilf Watson, Jan Simmonds, Norma Goodman and Sarah De Renzey.

Winsome Shepherd
Convenor Notable and
Historic Trees.

EXAMINING BOARD ANNUAL REPORT

Ladies and Gentlemen,

The Examining Board of the R.N.Z.I.H. continues to be important in the overall activities of the Institute. Since the last report the Board has met on three occasions, and the Executive Committee on four occasions, both to consider routine matters as well as aspects of concern. Much time and effort is given freely by Board members and this certainly is appreciated.

In addition to considering matters related to student administration and examinations, the Board has made progress with several aspects:

1. Horticultural Sales Certificate (H.S.C.)

The R.N.Z.I.H. Examinations Notice 1982/119, with respect to this certificate, came into force on 3rd June, 1982. It outlines a new scheme for the examination of those persons who are employed in the retail sale of horticultural plants and requisites.

It appears that this qualification has been recognised as essential for all working in garden centres, especially since these persons play an advisory role in their contact with the public.

The number of students now registered for the H.S.C. is 52, and applications are still being received.

2. "Training Opportunities and Careers in Horticulture"

The content of this booklet has been finalised. Further aspects to be considered are the costs of printing and distributing the booklet. There is no doubt that it is a very worthwhile venture for the Institute, as it will provide full information on all training opportunities and careers in horticulture.

At present this information is available in a number of brochures and leaflets produced by various organisations. The need is to consolidate the data in one comprehensive publication.

It is hoped that this project can be finalised in 1984.

3. Revision of National Diploma in Horticulture

A draft revision of each of the four schedules has been prepared and circulated to Board members for their comments. Many comments were received and considered at a meeting of the Executive on 30 April 1984, and a further draft is being prepared. In addition, details of a Fifth Schedule (in Horticulture) also have been circulated, a new draft is being prepared.

It is planned that a further meeting of the Board will consider the whole of the N.D.H. revision proposals, before they are circulated to the industry organisations for their comments.

One of the aims of the revision has been to make each of the Schedules similar in size with a number of common subjects as well as subjects specific to each Schedule. The number of oral and practical examinations is planned to be two, one to enable completion of the National Certificate in Horticulture (N.C.H.), and one to enable completion of a new award, The Advance National Certificate in Horticulture (A.N.C.H.). The N.D.H., which will be retained for those candidates who pass the A.N.C.H. and who also complete a thesis on a specific approved topic. Provision is being made for the award of the N.D.H. with Honours to well-qualified students.

4. Certificate in Horticultural Theory

This is a new certificate and a draft syllabus and prescription for this qualification have been prepared.

The certificate is likely to consist of 8 subjects, which can be completed over a 2-3 year period. Tuition should be available through the N.Z.T.C.I. There are no practical requirements. Provision is being made for each of the subjects to be cross-credited to the N.C.H. qualification so that if candidates decide to enter practical horticulture, then they can continue their studies.

The Board has been aware for some time of a growing number of persons who wish to obtain tuition and a qualification in horticulture, but who are not engaged in practical horticulture, and thus cannot enter into the N.C.H./N.D.H. programme. This new qualification is designed for these persons. It is anticipated that it will be a worthwhile development and fill an existing need.

5. Examinations Officer

Mr Neville Neeson was appointed to this position in 1983. He was fully involved with the 1983 examinations.

6. Appointment of Board Members and C.H.P. Moderators

Mr E.J. Martin of Hamilton was appointed to represent the New Zealand Nurserymen's Association, and Mr R. Findlay of Wellington to represent the M.A.F.

Mr D.W. McCallum of Blenheim was the Moderator for the 1983 examinations. For 1984, Mr R. Paul Pollock of Gisborne has been appointed to this position.

7. Award of Diplomas, Certificates and Prizes

The Board has approved the award of Diplomas, Certificates and Prizes. A full list of awards, as approved by the Board, will be published in the next issue of the Bulletin, but statistical information on graduations is contained in the Appendix to this report.

(Editors Note: The full list of awards is published in this issue, statistical information on graduations was published in the Autumn bulletin.)

8. Registrations and Examinations

Full details of these are included in the Appendix to this report. The total number of students registered with the Institute is 1,064 (as at 1 March 1984).

There is no doubt that horticulture is a growth industry and that many persons are seeking basic or further education in horticulture. The Board is pleased to be associated in this activity with the N.Z.T.C.I. which provides tuition for the students.

1983 Examinations

A total of 371 students were examined in the various certificate and diploma options in November 1983. This involved 998 written subject entries and over 60 individual subject examination papers. In addition, there were 131 candidates for N.D.H. Oral and Practical examinations, and 86 candidates for the C.H.P. (Cadet) Oral and Practical examinations.

Written examinations were conducted in over 37 separate venues throughout the country, and there were 9 centres used for the various Oral and Practical examinations.

Increases in the number of written examinations are not difficult to administer but the steadily increasing number of students reaching the Oral and Practical stages of their studies, poses real problems in physically handling this type of examination. Already both Auckland and Christchurch centres are taking 3 to 4 days to complete all Oral and Practical Schedules, and this time factor will increase.

Financial Requirements

During 1983 correspondence with the M.A.F. clearly indicated that financial support from Government would be severely restricted, and the level of Grant received for 1983 was only marginally higher than the amount received in 1982. Price freeze regulations prevented any increase in student fees which were slightly down on the previous year. Expenditure increased considerably, particularly in respect of examiners fees and expenses, and only to a slightly lesser degree in respect of administration costs. The appointment of an Examination Officer in August resulted in additional salary costs which were not evident in 1982.

Overall, a deficit of \$2,662 was incurred, and in view of notification from M.A.F. that the 1984 Grant will be pegged at 1983 levels, the Board can only rectify the situation by recommending increases in student registration and examination entry fees in 1984. Fees for the Institute's examinations have for many years been considerably below other trade examinations and even with the increase being applied this year they will still be more than comparable with the fees charged by other organisations.

A budget estimate of 1984 receipts and expenditure is attached for the attention of National Executive and approval is sought to apply the recommended increases in student fees.

Acknowledgements

The work of the Examining Board, is supported greatly by those outside concerns and people who give their services voluntarily to the Institute.

The Board is grateful to the Auckland Regional Authority, Auckland City Council, the Lower Hutt City Council, the Christchurch City Council, and the Levin Horticultural Research Centre for making available facilities and personnel for the N.D.H. Oral and Practical examinations. We are also grateful to Garden Centres in Auckland and Lower Hutt for hosting the Horticultural Sales Certificate Oral and Practical Examinations.

Ronald C. Close,
Chairman,
8th May, 1984.

GRADUATES — 1984 EXAMINATIONS

NATIONAL CERTIFICATE IN HORTICULTURE

SCHEDULE I

BLAKE Miss J.M.	- AUCKLAND	PAUL C.M.	- NEW PLYMOUTH
BOLTON D.E.	- AUCKLAND	PENFOLD A.B.	- CHRISTCHURCH
BURTON Mrs M.L.	- HAMILTON	RATHBONE Mrs J.M.	- DUNEDIN
CADZOW E.J.	- DUNEDIN	SAMUEL Ms J.E.	- KAITAIA
DYMOND W.P.	- AUCKLAND	SANDERS Ms H.S.	- WHANGAREI
HEINE Miss A.J.	- WELLINGTON	SHEWRY S.C.	- KAIKOHE
HUTCHINSON I.R.	- NEW PLYMOUTH	SMITH B.J.	- AUCKLAND
JACKSON I.M.	- CHRISTCHURCH	SMITH K.P.	- AUCKLAND
LAUTENSLAGER E.W.M.	- AUCKLAND	SMITH R.B.	- WELLINGTON
McKENZIE I.K.	- CHRISTCHURCH	SMITH R.N.	- CHRISTCHURCH
MACKWELL J.K.	- THAMES	SOLE D.T.	- WELLINGTON
MANVILLE N.L.	- CHRISTCHURCH	STAUTON Mrs C.L.	- AUCKLAND
MARTIN S.F.E.	- HAMILTON	TREACHER A.K.G.	- WELLINGTON
OUGHTON C.	- TAURANGA	WEDGE R.G.	- LOWER HUTT

SCHEDULE II

ROSS Mrs C.M.	- NEW PLYMOUTH	SWINBURN C.P.	- AUCKLAND
SEARANCKE Mrs N.E.	- AUCKLAND		

SCHEDULE III

CLIFFORD C.S.	- LEVIN
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SCHEDULE IV

ARBURY N.J.	- AUCKLAND	MILLER J.B.	- DUNEDIN
BILKEY Miss J.R.	- HASTINGS	MULLER P.J.	- HAMILTON
BRADBURY Miss T.	- KAIKOHE	PETLEY Mrs M.B.	- TAURANGA
CARSON A.D.	- AUCKLAND	READ S.M.	- NEW PLYMOUTH
DE JOUX A.E.	- KAIKOHE	ROSSITER G.G.	- HAMILTON
DODDS Ms J.B.	- HASTINGS	STEVENSON J.S.	- AUCKLAND
EVENSEN C.J.	- WELLINGTON	WALKER R.M.	- CHRISTCHURCH
GRAHAM A.L.A.	- LEVIN	WRIGHT W.T.	- INVERCARGILL

NATIONAL DIPLOMA IN HORTICULTURE

SCHEDULE I

PETHERAM A.K.	- HAMILTON	PETHERAM Mrs J.A.	- HAMILTON
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HORTICULTURAL SALES CERTIFICATE

NOLAN Miss B.E.	- WELLINGTON	RIORDAN Mrs V.M.	- AUCKLAND
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CERTIFICATE IN HORTICULTURAL PRACTICE - AWARDS 1983

Citrus/Sub-Tropical Fruit

Bay of Plenty

Carter T.P.
Corbett R.J.
Dekker A.
Dowson N.D.
Dyer C.G.
Greenslade A.D.
Haycock L.P.
Hill C.J.
Hopcraft G.R.
Jefferson A.C.
Johnson D.S.N.
Kennedy C.R.
Lovelock R.B.
Matuschka A.M.
McHardy D.C.
McHardy E.J.
McPherson A.C.
Pratt M.J.
Robertson D.G.
Rowe D.L.
Rowling C.H.J.
Schuit A.
Stewart S.E.
Streeter A.M.
Tarr G.W.
Tomsett K.S.
Webb P.E.
Williams M.
Wolley M.A.

Nelson

Allred D.I.

Poverty Bay

Blake M.G.
Drummond J.K.
Hyde R.W.
Mettner K.J.
O'Connor K.B.

Glasshouse Vegetable

Auckland

Seay G.A.
Thomas D.

Pip/Stone Fruit

Nelson

Gladston P.M.
Jary T.J.
Kernohan G.A.
Neame J.M.
Wallis M.J.

Hawkes Bay

Fitness I.R.
Hodgson G.C.
Howard P.E.
Irwin M.K.
Laing N.W.
Nash C.D.
Wakefield B.P.
Wedd R.J.
Wilson D.N.
Brodie R.
Geuze A.C.

Auckland

McRae P.P.
Scarrow M.A.
Thompson P.A.
Webb A.D.

Viticulture

Alexander M.C.
Anderson A.M.
Foster B.J.
Peacock G.H.
Perry J.F.
Stassen M.G.
Green T.J.

Outdoor Vegetable

Auckland

Moulds P.M.
West S.A.

CONGRATULATIONS

Congratulations to the following winners of prizes for meritorious performance in the 1983 examinations :

J.A. CAMPBELL PRIZE - for candidate completing National Certificate in Schedules I or IV with best average marks in Subjects Nos. 10-14.

Ms J.E. SAMUEL - KAITAIA

DAVID TANNOCK PRIZE - For highest marks in Oral and Practical (No. 21) Schedule I

W.D. WILLIAMS - DUNEDIN

JUNIOR MEMORIAL PRIZE - for highest marks in Oral and Practical I (No. 9), all Schedules. Joint awards.

Mr M.P. VAN TILLBURG - AUCKLAND

Miss L.H. MOCHAN - TAURANGA

P.J. SKELLERUP PRIZE - for candidate completing Nos. 1 - 9 all Schedules, with best average marks.

A.R. TATE - TAURANGA

NEW ZEALAND VEGETABLE AND PRODUCE GROWERS' FEDERATION PRIZE :

Best record for a first year student in subjects 1 - 4 Schedule III.

J.T. VAN DER GULIK - AUCKLAND.

Best overall record for the year in the Schedule III examinations by other than a first year student.

P.J. LISSINGTON - PALMERSTON NORTH

NEW ZEALAND NURSERYMEN'S ASSOCIATION PRIZE - for the best record for the year in Schedule IV.

Miss R.T. MUNRO - LEVIN

RITA M. SKELLERUP PRIZE - for candidate completing National Certificate in Schedules II or III, with the best average marks in Subjects No.s 10-14.

Mr C.S. CLIFFORD - OTAKI RAILWAY

QUEEN ELIZABETH II NATIONAL TRUST

The Queen Elizabeth the Second National Trust is a statutory organisation mainly concerned with the protection of privately owned landscape features such as forest remnants, gardens, peat lakes, rivers, tracts of rural countryside, or wild and scenic rivers. Accepting and managing gifts of property is one of the ways the Trust can help landowners ensure that their land is protected in perpetuity. Of the several valuable properties for which the Trust is responsible is Hollard Gardens, gifted in 1982 by Bernard and Rose Hollard of Kaponga, Taranaki.

HOLLARD GARDENS

by

A. D. Jellyman, N.D.H. (N.Z.)

*(Member of the Hollard Gardens Management Committee,
and Director of Parks, New Plymouth City Council)*

The volcanic ash soils of Taranaki have given rise to a strong horticultural industry over a century or more. The fertile ring plain of Mount Egmont has proven to be an accommodating site for many ornamental trees and shrubs for which Taranaki is renown. Hollard Gardens is the result of these influences, along with the indelible mark of one man and his wife, Bernard and Rose Hollard.

One of the long established resorts on Mount Egmont is Dawson Falls, from where walks radiate around the National Park. Access to Dawson Falls from the South Taranaki township of Kaponga is by a 15 kilometre drive up the Manaia Road, through some of the province's fine farm land. The road is flanked, Taranaki style, with the seedless barberry hedges, so dominant that one could easily pass by Hollard Gardens because the barberry hedge on the western frontage gives no hint of what lies behind. The only clue is the lone golden pine, *Pinus radiata aurea*, with its crown of golden needles standing above the hedge. Numerous visitors to the four hectare garden would testify to its extraordinary charm, collection of plants, and character. In the past it has been the preserve of those fortunate enough to know about it. Today, however, it is a legacy to the nation thanks to Bernard and Rose Hollard endowing their garden to the Queen Elizabeth the Second National Trust. The Trust is responsible for the garden and for protecting it in the style of Hollards and developed.

Fortunately, the Trust has continuing input from Bernie Hollard who, although in his eighties, is enthusiastic and active. Following the decision to vest the property with the Trust the garden was doubled two years ago by the addition of two hectares of farmland. Bernie Hollard was the architect of the new garden and without the aid of formal plans conceived the master layout of paths. The result of the basic idea that the walks follow the contours was that there was no need to have any cuts or fill to create the path system.



Bernard Hollard, OSO, AHRNZIH, was born early this century close to the site of his home today. Following the death of his mother while a small boy he lived with his grandparents who kept a garden of many fruits. Bernie can remember growing his first cutting, a yellow flowered abutilon, at the age of five. Later the family moved to New Plymouth and lived close to Pukekura Park. On a nearby plot cut flowers were grown and the home garden was extensive.

In 1926 Bernard, with the assistance of his father, returned to Manaia Road to commence farming a piece of land. By this time his love of plants was well established. An uncle, Mr Frethey, had left the land of South Taranki to establish a large private garden in New Plymouth, known for many years as Frethey's Gardens.

The first action on the new farm was to fence off the bush remnant below the house. It was here the garden began. The first plant was *Rhododendron elegans* followed by *Rhododendron arboreum kermesinum* and *Rhododendron* 'Ivery's Scarlet'. Despite limited financial means Bernie purchased plants and established an enduring friendship with the late Sir Victor Davies, principal of Duncan and Davies. Intuitive plantsmanship was the gift which enabled the garden to develop. Soon

Bernie was propagating plants from layers and cuttings, and each year New Plymouth nurserymen would get plants from the garden and in return provide new plants.

Knowledge and enthusiasm were undoubtedly shared with other local gardeners of note, such as Percy Thomson of Stratford, Harold Marchant of Cardiff, Leslie Taylor or Ngaere, Les Jury and Felix Fury, Rolly Barry of Hawera, Fred Parker of New Plymouth, and Wally and Jean Stevens of Wanganui. The Hollards were keen collectors and raised seed from many sources to gather a bewildering array of herbaceous and bulbous plants. Today the garden has the most comprehensive collection of plants in any private garden in New Zealand. Bernie Hollard can recall the names and origins of most plants and happily shares that knowledge. One of the Trust's challenges is to record and document this collection.

The established garden slopes from north to south. The South Garden is narrow and enclosed by barberry hedges, and pathways are narrow with plants growing right to the edges. Other than in the newly developed garden there are no lawns.

A tour of the garden begins from the main drive heading into the South Garden where Rhododendrons, Camellias and specimen trees are dominant. Under these all sorts of herbaceous plants flourish. Primroses and polyanthus abound, along with aquilegias, libertias, *Lobelia vedrariensis* aconites, hostas, iris, omphalodes and jugas. A sunny bank is flanked by a carpet of blue lithospermum and subtropicals crowd in sheltered corners. A tall hedge separates the southern most part of the garden where more rhododendron abound along with deciduous and evergreen azaleas.



At the head of the South Garden lies a half moon garden which always has a gem to catch the eye of an avid gardener.

A new path now links the South Garden to the New Garden. The notable features are the critically placed shelter belts and the mass planting of *Rhododendron kaponga* (raised from the original plants of *Rhododendron arboreum kermesinum* 'Ivory's Scarlet' and awarded the New Zealand Award of Distinction in 1983, jointly by the New Zealand Rhododendron Association and Pukeiti Rhododendron Trust).

At the northern end of the New Garden, having passed along a collection of ghent azaleas, you enter the North Garden. The many plants include large flowered clematis which scrambles over shrubby plants. This garden is the home of the original plant of *Rhododendron kaponga*. It also has an extensive collection of named evergreen and deciduous azaleas now seldom seen and no longer available commercially.

From the North Garden the path leads through the original garden now called the Bush Walk, with *Rhododendron elegans* and the remains of *Rhododendron kaponga's* parent plants along with a gigantic vine of the native passions flower, *Tetrapathea tetrandra*. As you emerge from the bush remnant the path is flanked with azaleas, hydrangeas, ajuga, maples and variegated sedge to bring you to the Bog Garden.

The Bog Garden is dominated by *Magnolia campbellii*, one of two trees nearly forty years of age. The other tree by the house took 21 years to flower, demanding patience and faith of any gardener.

In this area a new development is being completed to extend the collection and redisplay some mature rhododendrons of the original collection. Only last year the extension was covered in the potato vine, *Solanum jasminoides*, which had suppressed all other growth. Today Bernie Hollard has all the new inhabitants for this area ready and sited in his mind and cannot wait to get on with the planting.

The Bog Garden leads to the final garden called the Dell. This was the second section of the garden developed and features many plants, including *Embothrium*, rose species, libertias, clematis, phormiums, purple fennel, grevilleas, natural hybrids of the *Hebe diosmaefolia* and *H. townsoni*, daffodils, thalictrum, and primulas.

Gardeners in New Zealand can be thankful to Bernie and Rose Hollard for their endowment; the result of a lifetime of love and endeavour to collect and create a unique garden. New Zealanders now have the opportunity to enjoy this distinctive example of the gardener's art.

DISTRICT COUNCIL NEWS

CANTERBURY

FEBRUARY - TOUR OF NOTABLE TREES

There were 50 people present to hear Walter Fielding Cotterell speak about the various types of tree preservation. The group travelled by car around the various sites where Walter explained the reasons for preserving the various trees on the Tree Preservation Register.

At the conclusion of the morning tour a vote of thanks was passed and great interest was shown in the future programme of the Institute. Some of the trees visited were *Ginko biloba*, approximately 80 years old; *Quercus robur*, approximately 120 years old; *Fagus sylvatica purpurea*, approximately 60 years old; *Plagiantus betulinus*, over 100 years old; *Eucalyptus globulus*, approximately 100 years old, and *Sequoiadendron giganteum*, approximately 100 years old.

MARCH

The Annual General Meeting was held in the Garden Club Room of the Canterbury Horticultural Society.

The following members were elected.

Chairman	-	K. Garnett
Secretary/Treasurer	-	D. Moyle
Committee	-	J. Taylor, D. Riach, G. Nind, N. Owers, J. Allen, R. Edwards, D. Shillito, R. Doyle

At the conclusion of the election of officers Mr Roland Clark noted tree crop enthusiast, spoke of the commercial prospects that were open to young people in Canterbury.

APRIL

The Canterbury District Council invited the public to join them at Morgan and Pollard's turf nursery for a demonstration on how to lay a lawn by turf and seed. Much interest was shown in the turf machine which cuts, lifts and rolls the turf in one operation. This machine is normally operated by two men, the driver and a person to stock the turf on the pallets. The controls can be locked and the tractor steered by a sensor which runs along the edge of the uncut turf. The talk that followed was an excellent one with much interest shown, and many questions were asked.

When the demonstration had concluded the group were free to wonder through the tree and shrub section of the nursery.

COMING EVENTS

August 11th, Propagation demonstration conducted at the Christchurch Botanic Gardens.

September 8th, The sowing of a vegetable garden.

October 25th, An address by Mr Brain Halliwell of Kew Gardens.

D. Moyle
Secretary.

BAY OF PLENTY

For the Bay of Plenty District Council, 1983 was another active year. Unfortunately many of our members live a considerable distance from Tauranga so they gain no benefit from our activities.

The ten monthly meetings were only part of the year's events. Taking advantage of daylight saving, members assembled at the glasshouses of a local commercial carnation grower for the beginning of the February meeting, moving to the regular hall for slides of Brazilian flora and of New Zealand mountain scenery. Talks through the year were on Narcissus raising, Australian plants, herbs in the compost, companion plants, a series on sub-tropical fruits, vegetables, bees and the garden, nut growing in the Bay of Plenty, small-flowered camellias, dwarfed fruit trees, illustrated talks on East Africa, and on trekking in the Annapurna region, showing plants, and interesting aspects of the agriculture of that region. The interesting table, with flora and fauna from apples to Zephyranthes has provided a wealth of information and discussion.

We are now celebrating Arbor Day by planting in Faulkner Park, one of Tauranga's newer parks. To date, Azaleas, Rhododendrons, Ericas and a few Acer have been planted.

The Camellia and Spring Show (with the Bay of Plenty Camellia Society) in August, and the Rose and Iris Show (with the Bay of Plenty Rose and Iris Societies) in November, are two major events in the local horticultural calendar with the Floral Art Society and the Federation of Garden Clubs also participating.

The "Gardens of the Year" competition sponsored by the Tauranga City Council is organised by the District Council, judging taking place in October. A tour of prize winning gardens is usually made by members.

- Joan A. Swinhoun
Hon. Secretary.

OTAGO

I have pleasure in presenting the 1983-84 annual report of the Otago Council of the Royal New Zealand Institute of Horticulture. Once again the Otago Council has tried to involve its local members as well as members of the public by arranging a series of activities in and around the city and at different seasons of the year.

Several films were shown at last years A.G.M. and at a July meeting orchids were the theme with Dr Ian St George speaking about and showing slides of native orchids while Mr Geoffrey Paterson outlined his professional approach to growing exotic orchids for markets in New Zealand and overseas. A tree planting exercise in August, to mark Conservation Week, took the form of a planting of natives at Cosy Dell, and in October a seminar at the Botanic Gardens, Rob Abernethy, Katharine Abernethy, John Scott and Wayne Williams demonstrated propagation techniques at a very well attended morning session.

An early evening walkabout in November began with the affixing of R.N.Z.I.H. marker labels to one of two notable trees at the foot of Glendining Avenue and to the Royal Oak at the Botanic Gardens followed by an inspection of Liriodendrons in Queen Street, a nearby garden, and trees in the Mater Hospital grounds. Another excursion with an emphasis on trees followed in February with demonstrations of tree pruning and surgery techniques on the University campus by Mr Frank Buddingh' and two assistants.

Members of the council, again acted as supervisors for the R.N.Z.I.H. examinations in November and met at an informal gathering at the home of the treasurer shortly before Christmas.

I would like to thank all council members for their support, including staging exhibits at recent Dunedin Horticultural Society shows and to Robert Scott, our very competent secretary who has also written our newsletters.

Barbara Cave,
F.R.N.Z.I.H. Chairman,
Otago District Council.

WAIKATO

The following are the committee members for 1984:

- President - Mrs I. Robb
- Secretary - Mrs W. Atkinson
- Treasurer - Mr F. Dorofaeff
- Committee - Mrs B. Pavlovich, Dr W. Fraser, Mr M. Williams,
Mrs E. Hunt, Mr E. Martin, Mr & Mrs W. Sparks,
Mr & Mrs G. Redgate.

PROGRAMME

So far this year we have had the following meetings:

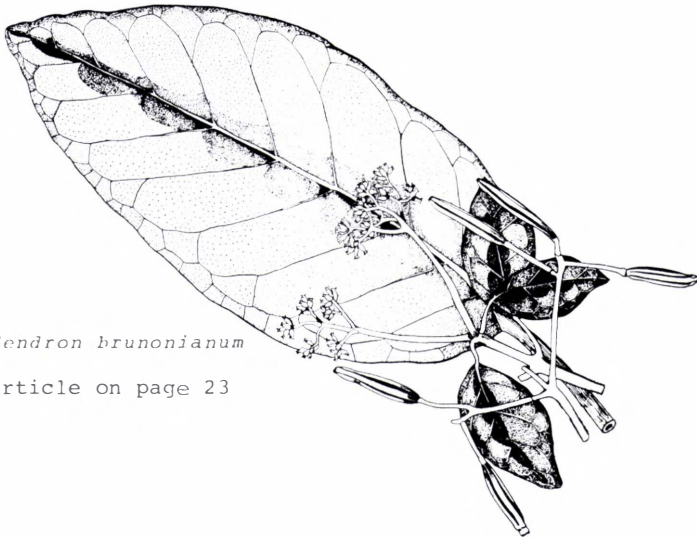
- February - An interesting talk on Lilies
- March - Propagation in the Home Garden
- April - Autumn Show - An interesting evening of speakers
talking on:- Berried Plants, Cruthsanthemums,
Dried Flowers, Early Flowering Camellias,
Slides - Native Fungi.
- May - Gardens in China - Slides and talk, Nut Crops.

GARDEN VISITS

As usual varied and all beautiful in their own way.

HAMILTON GARDENS

We intend to work in with the Hamilton City Council for demonstations along with other garden groups. We expect this venture to be very interesting and stimulating for all concerned. The Council is hoping to develop a large horti.. culture complex available to educational and Garden Groups.



Heimerliodendron brunonianum

Refer to article on page 23

HEIMERLIODENDRON BRUNONIANUM

THE PARAPARA OR BIRD-CATCHER PLANT - A REMINDER:

by

Alan Fielding

This plant, originally known as *Pisonia brunoniana* and indigenous to the Kermadecs, Three Kings, east coast Northland to the East Cape, has in recent years become a popular indoor and outdoor shrub.

It flowers and fruits most of the year in its natural habitat, producing a very sticky fruit. It is this fruit that has given rise to the name "Bird-Catcher". It has also given rise to a problem.

Small birds such as Fantails, Grey Warblers, and Silver-eyes hunting for insects amongst the branches of this shrub, are at risk of becoming stuck to its sticky fruits. Once stuck, the bird has little chance of escape. The effect is very similar to that of bird lime - even if the bird does free itself, it will almost certainly then stick to everything it comes into contact with.

The mechanism of "catching" small birds provides "compost" for the next generation of Parapara seedlings and with larger birds and mammals it provides a very effective seed dispersal.

Because of its ability to trap and kill small birds, many gardeners will not grow this handsome plant. However, it is valuable both indoors and outdoors and the solution would appear to be that people plant their Parapara where they will see them often and will therefore be reminded to carry out a regular flower prune. Marking a calendar or diary with a reminder would also help.

Hopefully we can continue to have our Parapara and our small birds in our gardens. Should you discover a bird stuck to the fruit, gently remove and rub flour lightly into the feathers until the "glue" rolls off leaving a clean, if somewhat dusty bird.

WELCOME: to the following new members

Allport B.G.	Hawkes Bay	Backhouse-Smith C.H.E.	Auckland
Bailey A.J.	Whangarei	Bailey Mrs J.R.M.	Hobsonville
Baines S.J.	Palmerston North	Baird D.K.	Invercargill
Baird W.A.	Auckland	Barrett G.A.	Invercargill
Bell Ms K.E.	Invercargill	Bell R.N.	Auckland
Bellamy A.M.	Ruawai	Bird M.M.	Waihi
Black P.A.	New Plymouth	Blackeway B.J.	Christchurch
Blackwell C.R.	Te Puke	Bowman G.E.	Upper Hutt
Bridges W.C.	Tauranga	Brown D.J.	Mosgiel
Brown N.C.	Auckland	Bryan R.S.	Paraparaumu
Callaghan G.S.	Feilding	Cameron D.A.	Auckland
Castaing T.M.	Auckland	Caughy P.J.	Invercargill
Chonnam National University	Korea	Cleaver S.D.	Whangarei
Cloughley R.G.	Dunedin	Coleman G.J.	Wellington
Collins I.J.	New Plymouth	Colyer P.N.	Hamilton
Cooksley Ms L.V.	Auckland	Corfield E.W.	Tauranga
Coulter G.L.	Christchurch	Craig A.C.R.	Hanmer Springs
Cumberpatch R.L.	Christchurch	Dallas Mrs J.R.	Southland
Dew S.V.	Carterton	De Waard A.	Hamilton
Dowling M.J.	Invercargill	Doyle R.J.	Christchurch
Drake L.A.	Auckland	Dubois Miss S.M.	Auckland
Ede G.D.	Hamilton	Edmonds P.J.	Auckland
Erceg P.A.	Auckland	Fleming Miss S.A.	Whangarei
Freeman C.J.	Christchurch	Fursdon M.D.	Auckland
Gibbons Ms P.J.	Christchurch	Gilchrist Miss C.J.	Wellington
Gilmour W.B.	Cambridge	Graham R.J.	Wellington
Gray J.M.	Auckland	Griffin Miss P.J.	Eastbourne
Groves E.M.	New Plymouth	Hart Miss C.	Tauranga
Helsby Miss F.	Tauranga	Helyer M.A.	Papatoetoe
Herbert Mrs M.I.	Wellington	Hewlett W.R.	Hamilton
Higgs G.L.	Paraparauma	Hills S.I.	Christchurch
Holmes A.T.	Auckland	Hosking A.M.	Auckland
Hurton Ms C.	Christchurch	Inch Miss L.F.	Motueka
Jarvis M.S.	Auckland	Johnston M.D.	Papakura
Jones Ms S.A.	Dunedin	Kerkmeester J.O.	Tauranga
Kerslake J.A.	Auckland	Kingi P.F.	Tauranga
Kiri Kiri Tiki	Tauranga	Knight J.R.	Waiuku
Knight S.R.	Waiuku	Kurth W.D.	Hamilton
Lennox Miss A.F.	Hawera	Lilly R.G.	Cambridge
Lord Ms F.M.	Invercargill	Luddon Ms P.M.	Dunedin
MacCrae Miss E.M.	Hamilton	McConville M.E.	Auckland
McKnight C.J.	Auckland	McMahon Ms S.M.	Auckland
McNicol Mrs E.M.	Auckland	Maley Miss K.F.	Palmerston North
Matthews R.D.	Auckland	Mikkelsen M.E.	Palmerston North
Molan Ms S.R.	Hamilton	Molloy Miss S.C.R.	Christchurch
Moyle S.V.	Tauranga	Mross Ms G.L.	Cambridge
Murtagh G.D.	Hamilton	Nilsson I.S.	Auckland
O'Dowd B.A.	Howick	Olsen C.P.	Mt Maunganui
Parata I.L.	Tauranga	Passau G.D.	Auckland
Pedley Miss F.J.	Levin	Pepper P.C.	Auckland
Poinga M.	Tauranga	Quill C.M.	Wellington
Rahiri T.S.	Tauranga	Richards Mrs J.M.	Mt. Maunganui
Rogers R.	Auckland	Rogerson M.	Henderson
Rosie E.	Auckland	Rowley B.M.	Nelson
Russell D.M.	Tirau	Semadeni Mrs T.J.	Auckland
Sewell Miss N.R.	Palmerston North	Skinner R.P.	Tauranga

Smith C.D.	Taranaki	Smith E.J.	Pukekohe
Smits M.J.T.	Auckland	Stanford Mr	Taupo
Stoyanoff P.A.	Christchurch	Stratton Miss L.J.	Mosgiel
Tahana R.	Tauranga	Taiaroa R.N.	Tauranga
Taylor B.G.	Wellington	Teoli M.	Tauranga
Teua W.B.	Tauranga	Thompson P.R.	Palmerston
Timperley D.L.	Whangarei	Trembath Ms P.A.	Auckland
Tubbs M.J.	Kaikohe	Van Delden Mr	Whakatane
Vincent G.	Wellington	Waine D.G.	Te Kuiti
Walker G.A.	Maketu	Ward S.O.	Tauranga
Watene P.R.	Auckland	Wilkins A.J.	Hamilton
Whitman J.C.	Auckland		

CONSERVATION WEEK 1984

WATER MEANS LIFE

28 JULY - 5 AUGUST

This year's Conservation Week hopes to make New Zealander's aware of their country's aquatic resources, and to encourage people to use these resources wisely.

Water, which is present in nearly all things, is essential for life - for plants, insects, birds, mammals, including people. The earth gets enough rain, over 500,000,000,000,000 tonnes a year, but unfortunately this is not evenly shared. Average annual rainfall for New Zealand is high probably more than 2000mm, however, much of this falls on the West Coast of the South Island and can not be used by the bulk of the population, which is concentrated in the North Island.

Although the amount of water available in New Zealand is constant, rapidly growing population and industry mean demands for it are increasing. We are today not only using more water, but using it in more complicated ways. As a result the various uses of water are increasingly coming into conflict with one another.

A river polluted by waste discharged from a factory may still be suitable for watering crops but will perhaps no longer support fish and much plant life. The pollution may also make the area undesirable for recreational activities - swimming, boating or picnicing.

HUNTLY WASTE HEAT FOR HORTICULTURE

by

Simon Terry

(Taken from: Energywatch 1983 No 4)

Waste heat from the Huntly power station is to be the source of warmth for a \$4 million greenhouse complex being planned by the Waahi Marae Trust. The trust administers land adjacent to the power station and has the Energy Ministry's approval in principle to make use of warmed water which is discharged from the station as part of its cooling process.

Roughly forty percent of the energy released from coal and gas burnt in Huntly's furnaces is eventually lost to cooling water which is cycled through the station at up to 2 million litres a minute. Consultants to the trust, Angus, Flood and Griffiths of Hamilton, estimate that only 5 percent of the peak flow would be needed to warm the 40,000 square metres of glasshousing planned.

The greenhouse complex is expected to take the form of a series of 1,500 square metre modules which would be constructed in four stages. As a first step, a prototype is planned for construction by June, 1984, at a cost of \$260,000. Water pipes and pumping equipment are included in the cost of this first module, whereas later ones are estimated to cost only \$150,000.

Consultants advising the trust on marketing expect the annual rate of return on the venture to be high - in excess of the 25 percent normally realised on such developments. This is thanks to a free source of heat and an efficient glasshouse design. Gas will be used as a reserve source of heat because it is already planned to be laid on to boost carbon dioxide levels in the greenhouse.

Although it will be the first of its kind in New Zealand, consultant John Griffiths stresses that the technology is proven and is similar to Japanese designs. The major difficulty with using water from the Huntly power station is that the cooling system was engineered to minimise the temperature of the water returned to the Waikato River so that the outward flow is only 8 degrees Celsius warmer than the water taken in.

In the first year of operation, a single crop such as tomatoes will be grown to fill gaps in the local markets. But once any initial difficulties have been overcome, production will increasingly be geared towards the export market.

STUDENT SECTION



Karaka

Corynocarpus laevigatus

Corynocarpaceae

EDITORIAL

Fresh, cool mornings with differing severity of frosts are now more the norm than the exception, with the snow clad Southern Alps providing a picturesque scene. Horticulturists on such mornings have basically two alternatives to warm themselves up, - either working in heated glasshouses or doing something physical (such as digging, or mixing a soil mix). The seasons cool, longer nights provide an ideal time for keeping warm inside and studying through assignments.

I had the privilege of flying and tramping around Mount Cook National Park at Easter. Beautiful weather prevailed then, but when one sees all the vegetation up there, you think of this time of year when much of the area is covered in snow. It makes one appreciate the great diversity of climatic conditions plants survive in, which in turn means our survival. We take a lot for granted when one stops and thinks, don't we?

I have received no correspondence from any readers yet, so how about writing or selecting an interesting article and posting it to me. Anything of horticultural interest will benefit readers and will be gratefully received.

- Kind regards
Nick Owers

WEATHER AND YOUR GARDEN

The following is the first in a series of articles, taken from New Zealand Meteorological Service Publication No. 168

by R.W. Heine

FROST

As a weather element, frost represents a real hazard to the home gardener concerned with early spring planting of frost sensitive vegetables such as tomatoes. Officially a ground frost is said to have occurred when the grass minimum thermometer reads minus 1° C or lower. To describe its severity, the following terms are used:

slight frost	-	between -1° C and -3° C
moderate frost	-	between -3° C and -6° C
severe frost	-	between -6° C and -9° C
very severe frost	-	below -9° C

A screen or air frost, which is not as common as a ground frost, is said to have occurred when the air temperature falls to zero, in the standard meteorological instrument screen 1.3 m above the ground.

CAUSES OF FROST

In order to mitigate the effect of a frost in your garden, it is important that one understands the reasons for a frost occurring. There are two separate factors involved: the broadscale weather pattern over New Zealand, and the particular features of your garden. The ultimate factor which causes a frost is the temperature of the surface of the soil or lawn, as the case may be. It is this surface which cools the air, which in turn cools your plants.

During the day, the sun's radiation heats the ground and the soil warms up, along with the air just above it. It is contact with the warm soil which heats the air (by convection and conduction), rather than heat from the sun directly. At night there is a loss of heat from the ground into a clear sky, and the surface cools down. It is this surface which cools the air above it, which in turn cools the vegetation.

The factors which are favourable for the occurrence of frost are:

1. A cloudy day - little radiation from the sun to heat the soil
2. A cover of vegetation - lawn and other cover crops, including mulches, insulate the soil from the heat of the sun
3. Dry soil - wet soil stores more heat than dry soil
4. Soil that has been dug, forked, and hoed - such tillage forms air pockets in the loose soil, which act as a heat insulator

5. A clear cloudless night - allows the heat from the ground to radiate into space
6. No wind at night - wind stirs the air, and prevents a cold layer forming at ground level

FROST PREVENTION

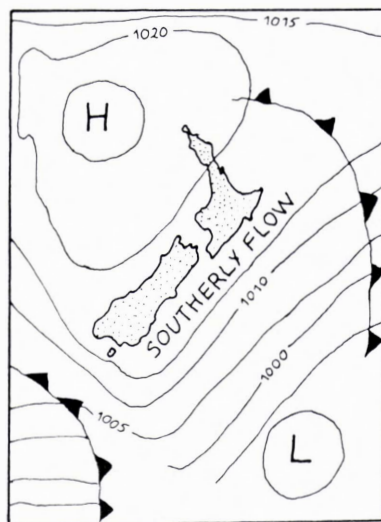
To minimise the occurrence of frost, soil should be bare of vegetation, kept moist (but *not* with a wet surface), and hoeing kept to a minimum. As cold air flows down hill, hedges across slopes will trap cold air, and low lying areas *within* a garden may also act as frost pockets.

Trees and walls will ameliorate protection to a certain extent, the reason for which may not be clear. Essentially the amount of heat radiation lost into space depends on how much your plot 'sees' of the clear night sky. Walls and trees reduce the amount of sky 'seen', even though they do not actually cover the ground. (A car parked alongside the wall of a house will often not have frost on the windows adjacent to the wall, for this reason).

Covering plants at night will protect them from frost; such covers should be poor conductors of heat, such as wooden boxes or newspapers, but not metal sheets which may result in more damage. Glass and clear plastic covers have the advantage that they can be left in place, and increase the temperature of the soil during the day. However glass on its own may not protect plants from moderate frosts (giving an increase of perhaps only 2-3⁰ C 100mm (4") above the soil), and plastics should be treated with similar caution. A small heater under such covers will however, be most effective. Sprouting potatoes can be covered over with soil while small, to protect them.

FROST FORECASTING

The most common kind of frost in New Zealand is the 'radiation' frost, which results from clear skies at night, and little or no wind. The greatest risk of frost arises at a time of rapid decrease in wind speed and clearance of the skies in the evening after a cold day, perhaps with very cold rain or sleet and snow. Such a situation is possible when a centre of low pressure ('L' on a weather map) has moved off to the east, away from the country, but before an anticyclone (a centre of high pressure 'H') has arrived.



Between them the wind flow will be southerly, and it is a decrease in this flow which leads to the above risk situation.

Centres of high pressure contain air which is descending, and at lower levels this air will be relatively dry. If the upper level air is dry too, then this factor itself increases the loss of heat into the sky at night.

If the low level surface air is dry, this may result in what is referred to as a 'black' frost. Insufficient moisture is present in the air to condense into water on leaves etc. when the temperature falls, so that the characteristic whiteness is absent from the landscape.

The dividing line between whether fog or frost will form may be quite fine. If the air is very moist when it cools, then the water vapour will condense and form a fog. Any slight wind will stir the fog and thicken it. Generally fog will reduce the risk of a frost occurring, although freezing fogs are known in the colder parts of New Zealand.

1984 EXAMINATIONS

READ THE QUESTIONS CAREFULLY!!

An analysis of the answers given by candidates in the 1983 N.D.H. examinations shows quite conclusively that marks were lost because of the failure to READ THE QUESTIONS PROPERLY! The effort put into a year's work can be lost if insufficient time is given to the reading of each question. Candidates cannot expect to obtain pass rates if they do not READ THE QUESTIONS CORRECTLY.

Other factors which contributed to the loss of marks included :

- (a) The inability to correctly spell the botanical names of fairly common plants.
- (b) The lack of understanding of basic horticultural terms.
- (c) The failure to arrange answers in a logical sequence of events.
- (d) The lack of interest shown in discussing new techniques.

These comments are advised for the benefit of all 1984 candidates and with particular emphasis on the need to TAKE YOUR TIME TO READ THE QUESTIONS CORRECTLY!!!

DOTHISTROMA NEEDLE BLIGHT OF PINES

(Taken from New Zealand Forest Service
information bulletin 1983)

Dothistroma needle blight was first found in New Zealand in 1964, with the discovery of a small outbreak in a pine plantation near Rotorua. Since then it has spread over most of the North Island and also the north and west of the South Island. In 1979 the disease was confirmed in Southland for the first time, within the Pebbly Hills and Southdown Blocks of Hokonui Forest.

The fungus, *Dothistroma pini*, is native to north-west America but also occurs in Europe, part of Africa, and Chile. It lives on the tissues of pine needles, killing them and causing them to drop off. In this way it affects crops of needles year after year, reducing a tree's vigour and hindering its growth so that it may eventually die.

Spread is through minute spores, thought to be carried in small drops of moisture, probably transmitted by rain splash or travelling considerable distance in mist or cloud. Disease levels appear to be related directly to the amount and duration of rain in early and late summer. Heavy and continuous rainfall at those times can cause a dramatic upsurge.

Some species of pines are more prone to this needle blight than others. Of the pine trees grown in New Zealand, radiata *Pinus radiata*, Corsican *Pinus nigra* var. *maritima*, and ponderosa *Pinus ponderosa* are particularly susceptible. Other pines are susceptible to a lesser extent, while on Douglas fir *Pseudotsuga menziesii* and larch *Larix decidua* (which strictly speaking are not pines, although still belonging under the general classification of "conifers") the effect of the blight is weak.

SYMPTOMS

The fungus develops on live needles, showing up as a brick-red band. Small black spots then appear in the red area. These contain the infective spores. If the climate is suitable and spores are abundant, most of the needles on a tree are attacked by the disease and killed.

Development of the disease can be quite slow. Several years can pass before enough spores are produced and for the attack to become heavy and widespread.

Because needles of pine trees die naturally and can also be killed by other parasitic fungi, a number of symptoms could be confused with those caused by *Dothistroma pini*. The infection can be identified by the following symptoms:

- * Brick-red bands appear on green needles and persist long after the green needles have withered and become dull brown or grey.
- * The red zone is distinctly marked off from the rest of the needle.
- * Small black spots erupt in the red infected zone.
- * The first signs of attack are often found on the needles of lower branches near the ground.

CHEMICAL CONTROL

Chemical treatment prevents the fungus from developing but does not eradicate it. Finely ground copper oxychloride in water stops the spores from germinating and attacking new needles. Aerial spraying is the usual means of application, and is effective in most regions when carried out between October and January.

Experience suggests that in medium hazard regions, *Pinus radiata* may need to be sprayed 3 times until it reaches about 15 years of age. After that it is less susceptible to the disease.

Corsican *Pinus nigra* var. *maritima* and ponderosa *Pinus ponderosa* pines do not acquire immunity with age.

PRUNING AND THINNING

While chemical methods are the main means of treatment, in some situations pruning and thinning may be a useful way of postponing or avoiding the need to spray for several seasons. Pruning removes many of the infected branches and reduces the number of spores produced which can re-infect the trees. Pruning and thinning together improve air circulation through the trees and prevent the occurrence of still, moist, air pockets which favour the development of the disease.

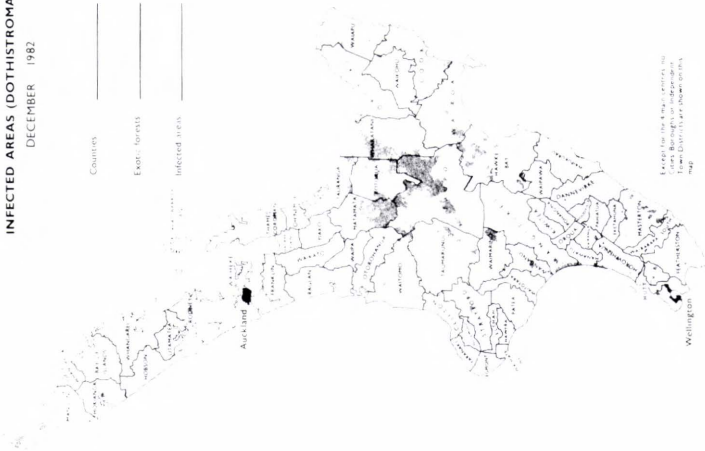
ADMINISTRATION

In 1966 it was realised that the disease was of national significance. Exotic pine plantations within both the State and private sectors were at risk. Control was needed on a nation-wide basis, so the major forest owners, including the New Zealand Forest Service, established a joint action committee to organise the letting of contracts for bulk purchase of copper fungicide and aerial application; control the quality of the whole operation; and advise forest owners on all matters relating to the control of the fungus.

The committee comprises an independent New Zealand Forest Service chairman and secretary, representatives of both Forest Service management and research, and three representatives of the private forest owners. Once a year a meeting of forest owners is convened to review spraying operations in the previous year and the overall control of the dothistroma programme, and to inform forest owners of progress in investigations to achieve more efficient control of the disease.

INFECTED AREAS (DOTHISTROMA PINI)
DECEMBER 1982

Counties _____
Export forests _____
Infected areas _____



Export forests are shaded in the same Districts as shown on this map.

INFECTED AREAS (DOTHISTROMA PINI)
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Counties _____
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Export forests are shaded in the same Districts as shown on this map.

RESTRICTIONS ON MOVEMENT OF PLANT MATERIAL

Though nothing can be done to prevent the natural spread of dothistroma by spore dispersal, precautions have been taken under the authority of the Forest Disease Control Regulations 1967.

Notices made under the regulations make it illegal to move plants or Christmas tree materials of exotic pines *Pinus sp.* Douglas fir *Pseudotsuga menziesii*, Sitka spruce *Picea sitchensis*, or larch species *Larix sp.* from any infected area to any uninfected area. (See maps).

These restrictions on movement and a generally dry climate have prevented spread to eastern areas of the South Island, notably Marlborough, Canterbury, and Otago. Southland also remains free of infection with the exception of the Pebbly Hills and Southdown Blocks of Hokonui Forest which were declared "infected areas" in November 1979 under the Forest Disease Control Regulations 1967.

IMPORTANT

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Entries due 31st July, 1984.

THE GENUS JOVELLANA

by

Alan Jolliffe

Jovellana was named in honour of D. Caspari Melchiori de Jovelanos, who was a student of the flora of Peru.

Belonging to the family Scrophulariaceae, Jovellana is a genus of 6 species of herbs or sub-shrubs found in South America and New Zealand. Early botanists included some species in the genus calceolaria because of their very close relationship.

N.Z. Calceolarias

Jovellana sinclairii is the larger of our two native species. Its habitat is the North Island from Hawkes Bay to East Cape where it grows in damp shady places. Often it can be found growing around rocks or wet shady banks. Its fleshy light green leaves enhance the plant in these locations.

Its 10-15mm diameter flowers are white, spotted with pink or purple and a yellow stain in the throat. The many flowers are supported on 300mm erect panicles and make a fine show in any garden.

In gardens, both public and private, *J. sinclairii* (the N.Z. Calceolaria) is one of our most delicate and beautiful plants.

Jovellana repens is a smaller version of *J. sinclairii*. Its native habitats are the North Island and Northern Westland areas of the South Island. It is a prostrate plant clinging and growing over rocks in very damp places. It produces fewer and smaller flowers than *J. sinclairii* without the yellow stain.

Jovellana violacea is a native of Chile and can be found growing in a few gardens in New Zealand. Growing up to 2m this twiggy shrub produces a fine display of unusually coloured flowers. The flowers are yellowish white to pale violet in colour covered in purple spots. The unusual colour combined with the typical calceolaria shaped flower makes it very attractive. A well-grown shrub can cover itself with hundreds of flowers.

Conclusion

To the casual observer the occurrence of species of Jovellana in both South America and New Zealand strengthens the possibility of vegetation linkages between the two land areas.

The natural occurrence of *Sophora microphylla* in both countries has led to botanical studies of this species by the D.S.I.R. over many years.

DRY WALLING CAN BE AS DURABLE AS BONDED MATERIALS.

by

G. Brakey

(Printed by permission of 'The Press' Christchurch)

Stone walls have been in use in Canterbury since the very early days of settlement. There are some fine examples of stone walling to be found in the Lyttelton area, as well as throughout Cashmere and many other parts of the Port Hills.

Many of these walls were constructed without mortar, particularly the very early walls.

In the hills area rocks were quarried or cleared from the land surface to be used in the walls. On the plains smaller stones were used, the rounder river-worn stones and field stones being used in the construction of unusual dry walls.

These early walls and many of the present day walls are excellent examples of the stone walls' attractions - they are durable, solid and part of the landscape from which they have been derived.

Quarried stone was often used by the more wealthy early settlers, the stone often being quarried on the property itself. Stone walls, even in those early days, were relatively expensive; they were time-consuming to build, as they still are today.

There are basically four types of stone wall:

Field stone, using any irregular shaped, unquarried stone found in or on the ground.

Rubble, using the broken residue from a stone-sawing operation.

Flagstone, derived from stone which has been so evenly stratified that it splits naturally into flat pieces (Halswell stone).

Cut stone, which has been shaped and dressed with a saw or chisel (Oamaru limestone).

Stone masonry is separated into rubble and ashlar walls. A rubble wall is constructed from blocks of stone which have been either roughly dressed or not dressed at all and have wide joints.

The stone may be split, however, to give a flat face for the wall. It can be used in either a dry wall or a mortared wall.

The dry wall can be either a low retaining wall or freestanding. Its construction depends entirely upon the forces of gravity and the friction between interlocking stones.

An ashlar wall is constructed from blocks of stone which have been carefully cut and dressed, with narrow and tight fitting joints. The stones are usually of the same height laid in a continuous

course.

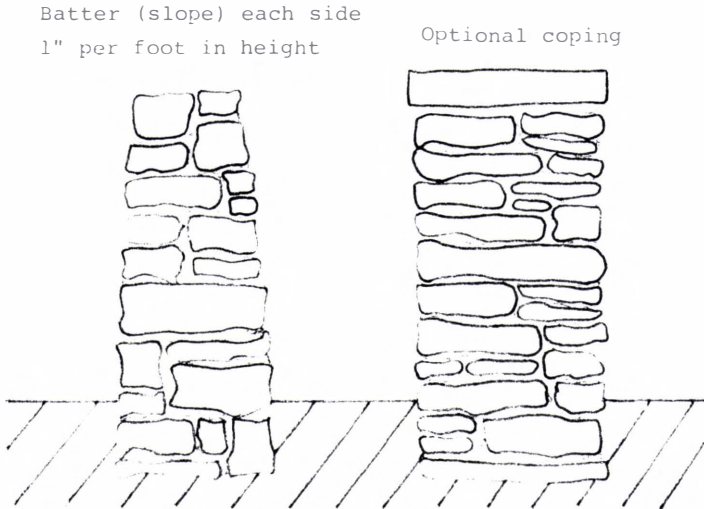
This "regular" course is the opposite of "random ashlar" where the stones are of various sizes and the effect of a course is not retained.

Stone is selected on the basis of appearance, cost, durability and maintenance. In New Zealand the main source of stone material is mica shist, volcanic scoria rock, Oamaru limestone and greywacke stone. A stone wall is judged on its colour, texture and ageing qualities, as well as on the general characteristics of the landscape in which the wall is to be built.

Some stone is more appropriate for a neatly tailored appearance, while other stone lends itself to a more rugged and naturally informal use.

Frost can have a most destructive effect on certain types of stone. Wet weather followed by frost can slowly but surely cause the disintegration and break down of the more porous stone; the builder should therefore be sure that the stone he selects is of a suitable type.

Correctly handled and built a stonewall can be a lasting source of interest and enjoyment.



DRY WALLS. The wall on the left is built of random rubble, and has been battered - that is, sloped inwards. The batter is one inch for every foot of height. This gives the wall stability. The wall on the right is built of flat flagstones, which stack easily; its faces are perpendicular. It is finished with a flat coping stone - not really necessary, as the wall would drain through the crevices between the stones.

FRUIT WORMS WITH A SWEET TOOTH

Are tomato fruit worms developing a sweet tooth?

That's the question DSIR entomologists are asking themselves after an export check in Hamilton recently turned up an unusual find - a tomato fruit worm living inside a raspberry.

The consignment of export raspberries had been grown in Te Awamutu.

"It is an interesting new situation but I don't think it's anything to worry about," says DSIR entomologist Ruud Klenpaste.

"Tomato fruit worms and raspberries have been around for a long time and if this sort of combination had taken place earlier we would have known about it.

"It is just a freak sort of thing - we only found the one."

KOWHAI MOTHS NOT HARMFUL

Contrary to popular belief Kowhai moths, *Uresiphita plotgonalis maoriaalis*, do not kill ornamental kowhai trees, according to DSIR entomologist Ruud Kleinpaste.

"The trees may look in a sorry state but it's merely a temporary defoliation.

"Kowhais have been co-existing with this moth for millions of years and the kowhai trees still exist in great abundance."

Mr Kleinpaste says the situation can be a little more serious when the kowhai moths migrate into nearby houses to pupate.

"The best thing is if people just pick up the caterpillars and put them outside again - they're not doing any harm really."

CROP PROTECTION

by

Hans Groner, agronomist
BASF Agricultural Research Station
Limburgerhof Federal Republic of Germany

(Taken from BASF Agricultural News 2/81)

NOZZLES FOR THE APPLICATION OF CROP PROTECTION PRODUCTS

Every year crop protection products worth millions are applied to safeguard and increase crop yields. For an accurate application, and one that supports the activity of the crop protectant, equipment in optimal operating conditions is necessary. The success or failure of the application techniques depends to a large extent on the nozzles with which the sprayer is equipped.

The nozzles have several functions :

1. Creation of a droplet spectrum that promotes neither spray drift nor premature evaporation of spray on its way between nozzles and target (spray mist). Moreover, the individual droplets also should not be too large, so that the moistened target areas are kept sufficiently large and there are no run-off losses.
2. Distribution of the recommended spray volume on the target (soil, plant) as evenly as possible, the spray jet being concentrated especially on those places where the product's activity is desired.

The various functions a nozzle must fulfil make it increasingly difficult to use a general-purpose nozzle. Rather nozzles must be used that are especially suited to the particular task.

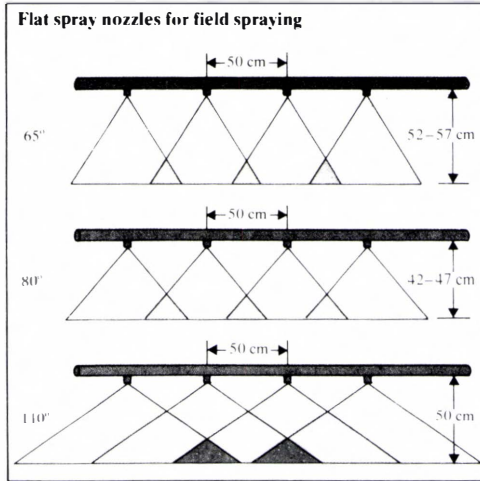
FAN NOZZLES, FLAT SPRAY NOZZLES

Generally treatments of field crops (cereals, beets etc.) make use of flat spray nozzles in series; i.e. the nozzles are mounted at an angle of 110° or 120° along a field sprayer boom. The distance between nozzle and target surface must be about 50 cm if the nozzles are spaced 50 cm apart on the spray boom. This arrangement results in double over-lapping. Flat spray nozzles produce good distribution only when neither too much nor too little pressure is used while moving. Optimal spray fans are produced at a pressure of 2.5 to 3.5 bar. A flat fan is created that is not so susceptible to wind. With too little pressure (under 2.5 bar) the spraying angle collapses; with too much pressure (more than 5 bar) the percentage of fine droplets (spray mist) increases, which drastically increases spray drift and worsens transversal distribution.

The flat spray nozzle, alone as well as in series, produces a transversal distribution with an accuracy still unsurpassed by any other nozzle type. Nevertheless, nozzles always must be checked periodically. This includes checking both the

rate of emission by the individual nozzles as well as the transversal distribution of the nozzle discharge. The rate of emission of each nozzle should not deviate more than max. ± 5 percent from the average of all nozzles. The transversal distribution value of each nozzle should not exceed ± 15 percent in comparison to the average of all nozzles.

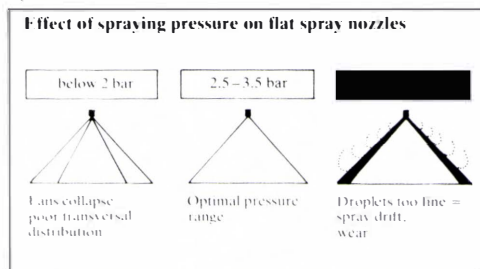
Figure 1



Even the best nozzles distribute poorly if they are continually being rocked and shaken. The boom should be suspended, which keeps the nozzles pretty much parallel to the target surface, regardless of the movements of the vehicle carrying the spray boom. Spray widths greater than 18 metres require greater nozzle-to-target distances for trouble-free spraying. At distances of 90 to 120 cm, the 110° to 120° nozzles produce more than the desired double overlapping. At these distances a 65° to 80° nozzle angle produces a good transversal distribution with double overlapping.

In addition to the 110° or 120° nozzles, which should be basic to every field sprayer, double flat spray nozzles are also used, especially for the application of fungicides. These nozzles have two fan orifices, each at an angle of 30° spraying both with and against the travelling direction. The advantage is that these nozzles can also moisten target surfaces that are shielded, away from the direct line of spray. The 65° and 80° nozzles are recommended for row applications and the 110° nozzles for treatment of the ears in cereal crops.

Figure 2



Recently, in addition to the traditional flat spray nozzle types, interest in the LP (low pressure) nozzle has started to spread and it has already been tried in practice for applying soil herbicides. These nozzles are also classified as flat spray nozzles, but are distinguished by the following additional characteristics :

The necessary spraying angle and hence the needed distribution is achieved at low pressures (beginning at 1 bar).

Because the pressure is so low, the droplet spectrum remains in a range relatively unsusceptible to drift, and the water volume can be reduced to 100 to 150 l/ha.

The wide-angle flat spray nozzle (150°) is primarily used for treatment of leaf undersides, 8 cm above the soil with nozzle spacing of 50 cm. The attachment of a parallelogram to guide the nozzles accurately over the soil is advantageous. The nozzle has two adjacent fan orifices, each with a spraying angle of 75° .

OC (off-centre) nozzles (spraying to the side) are used to treat areas under trees, along the edges of roads and embankments, or for band treatment of the undersides of leaves in beets and maize. In contrast to the symmetrically spraying flat nozzles, the OC nozzles produce an asymmetrical spray pattern.

Flat spray nozzles are constructed of various materials. In practice nozzle wear is due firstly to mechanical damage, and only secondly to physical-chemical influences. For the common nozzle materials, the material-related wear under normal spraying conditions increases in this order: stainless steel, brass, plastic.

Figure 3

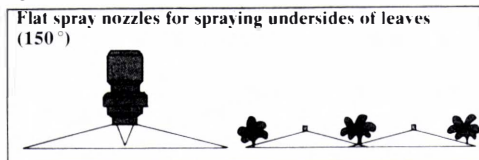
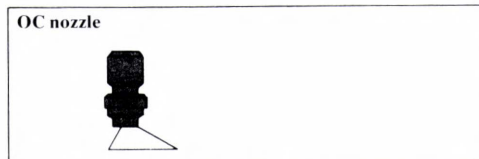


Figure 4



Since the nozzle tips (depending on method) have to be replaced relatively often, the manufacturers equip the sprayers right at the factory with double pipes, double nozzles, and even with 3- or 4-fold nozzles. This makes changing the nozzles easy and quick.

ROUND-ORIFICE NOZZLES - HOLLOW CONE AND FULL CONE NOZZLES
(SWIRL NOZZLES)

Hollow cone and full cone nozzles generally are used with high pressures (over 5 bar) for spraying and atomizing in tree crops (fruit, grapes, citrus). The uniformity of spray distribution in the case of round-orifice nozzles depends largely on precise nozzle adjustment and faultless boring in the nozzle disc. Compared to the fan nozzles, hollow cone nozzles with the same emission rate produce finer droplets. Nozzle bodies are now available for hollow cone and full cone nozzles that can be rotated 180° to stop or start the flow of spray. This mechanism permits the user to adjust the sprayer better for tree crops.

The round-orifice nozzles are not often used for field crops, as the transversal distribution in series usually is not as accurate as that with fan nozzles.

Swirl nozzles play a greater role when aircraft (fixed-wing aircraft, helicopters) are used. Here optimal spray distribution requires not only the correct nozzle spray angle, but also such factors as proper pressure, number and arrangement of nozzles, flight velocity and altitude are very important.

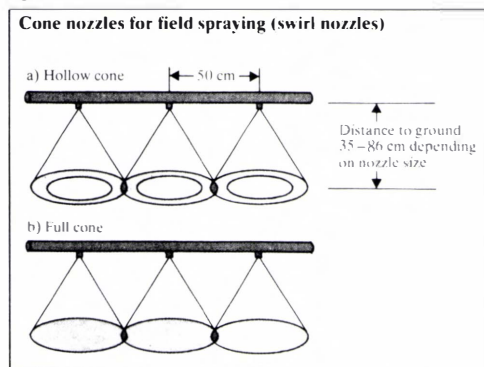
FLOODING NOZZLES

Flooding nozzles in series are not suited for spraying plant protection products because the transversal distribution is not precise enough. They are preferred in some countries for liquid fertiliser application.

APPLICATION TABLES

The manufacturers of plant protection nozzles have emission tables for the various nozzle sizes. These spray data in litres/minute and litres/hectare, at different pressures and various driving and flying velocities, are based on calibrations with water. A check of the sprayer before using it, however, is still necessary. In any case, the nozzle emission rate always should be checked to ensure the necessary accuracy.

Figure 5



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