

Horticulture

in New Zealand

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



28

Winter

1983



HORTICULTURE

IN NEW ZEALAND

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BULLETIN OF THE ROYAL N.Z. INSTITUTE OF HORTICULTURE
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Cover photo : *Magnolia x soulangeana*

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC)

<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, AHRH, FIPRA
<i>Chairman of Examining Board</i>	Dr R.C. Close, M.Sc., Ph.D.
<i>National Secretary</i>	Mr R.A. Foubister 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 M.I. Spurway

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Views expressed are not necessarily those of RNZIH.

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EDITORIAL

I thought a short editorial would be appropriate for this issue of the Bulletin as you have already read three previous editorials by me and this Winter issue is the largest Bulletin I have produced; I have run out of steam and time. There is however plenty of interesting - and I hope stimulating - reading in the following pages.

The 1983 A.G.M. in Auckland was a great success and my congratulations to all of those associated with it.

I hope all STUDENTS take careful note of what is in the students section in this issue and act accordingly.

To all of those who have had or have got this winter's range of cold viruses, my sympathy, having just got over one myself. I hope you will soon be able to get outside in the southerly winds to prune the roses, apples and all the other jobs that just can't wait until the temperature gets above freezing.

Happy gardening.

- David Shillito
Editor



ITEMS OF INTEREST FROM THE A.G.M.

The 1983 Annual General Meeting was remarkable for three reasons. Firstly it was the 60th A.G.M. of the Institute secondly, to mark the Diamond Jubilee, Auckland District Council excelled in all respects in staging the A.G.M. and Conference, and thirdly, attendance by members was the highest recorded for a good number of years. Congratulations, Auckland on a good job, well done.

The 90 or more members present were welcomed by Mr. P. Jew, who invited all concerned to enjoy the programme of events scheduled for the three days of the Conference. The programme covered a wide range of activities and visitors were given ample opportunity to view the gardens and beauty spots of greater Auckland.

Mr. J.O. Taylor as Chairman, opened the A.G.M. business session by paying tribute to deceased members whose names were read and who were honoured by two minutes of silence. His Annual Report, published in Bulletin #27 was opened for discussion and he enlarged upon several points.

Annual Accounts

These also were published in Bulletin #27. Mr. Taylor commented on the successful financial returns for the year, particularly in relation to the Examinations Account which recouped some of the deficits evident in past years. The financial situation is still marginal but an increase in membership subscriptions in 1983 and possibly student fees during 1984 will assist in meeting additional staffing costs which will occur with the appointment of an Examinations Officer in August 1983.

Opening Address

The formal opening address was presented by Dr. I.J. Shearer, Minister for the Environment who spoke on "The Environmental Role of Amenity Horticulture". Dr. Shearer's address, which will be published in the 1983 Annual Journal, was well presented and received.

Award Presentations

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

Mrs. R.W. Shepherd	-	Wellington
Mr. P.J. Jew	-	Auckland
Mr. S. Challenger	-	Christchurch

In presenting the awards Dr. J.D. Atkinson paid tribute to the individual contributions to horticulture, made by the recipients.

Plant Raiser Awards were made to Mr. H.J. Clark, Mr. Ian Bell, and to the late Emily Jean Stevens. Mr. Clark was present to receive his award and spoke in reply.

The award to Mr. Clark was for :

Camellia 'Craig Clark'
Rhododendron 'Sandra's Scarlet'
Hibiscus 'Apricot Parade'
Protea 'Clark's Red'

to Mr. Bell for :

Leucadendron 'Safari Sunset'
Leucadendron 'Bell's Sunrise'

to the late Mrs. Stevens for :

Leucadendron 'Red Gem'

Remits

Four remits and a Notice of Motion were considered.

Remit No. 1 from Canterbury District Council urged Government support for Lincoln and Massey diploma pre-entry students to obtain employment with Local Authorities. The remit was fully supported and carried.

Remit No. 2 from Northern District Councils advocated National Executive encouragement for District Councils to assist teachers in their areas to gain a wider appreciation of practical horticulture. The importance of secondary school tuition in horticulture was recognised and R.N.Z.I.H. could play an important role in maintaining standards in this regard. The remit was carried.

Remit No. 3 from Northern District Councils proposed a degree of equation between the Secondary School Horticulture syllabus and the first stages of N.D.H. syllabus. It was felt this would encourage school leavers to lead into the N.D.H. system. Exemptions similar to T.C.B. exemptions could be considered for school horticulture students and despite some reservations the remit was carried.

Remit No. 4 from Whangarei District Council sought amendment to the Regulations Governing District Councils to provide for a reduced quorum for District Council A.G.M.s. This was considered more of a local problem in Whangarei rather than a national problem and after an assurance that National Executive would give separate consideration in the case of Whangarei, the remit was withdrawn.

Notice of Motion from National Executive sought approval to increase the number of Executive members by two, by offering ex-officio membership to the Heads of the Horticultural Departments of Lincoln College and Massey University. This was

carried after an amendment to the Motion which defined the term "nominees" more precisely.

(Editor's Note : Full texts of the remits presented were published in Bulletin #27)

ELECTION OF OFFICERS

No postal ballot was required this year to elect the National Executive. The four vacancies on the Executive were covered by four nominations who were all elected. A list of members of the 1983/1984 National Executive was published in Bulletin #27. Other office bearers elected were :

- Patron - His Excellency the Governor General
- Vice Patron - The Hon. Duncan MacIntyre, Minister of Agriculture & Fisheries
- President - Mr. R.J. Ballinger
- Auditors - McCulloch Menzies & Co., Christchurch.

Other matters of interest from the A.G.M. :

Reports from the Notable & Historic Trees Committee and District Council reports were not taken during the meeting but are published in this issue of the Bulletin for the interest of all members.

The Chairman advised that an invitation to administer a National Garden Competition had been accepted by National Executive. This competition, sponsored by the Broadbank Organisation, in conjunction with T.V.N.Z. would create N.Z. wide interest and would be conducted in the spring and summer of 1983/1984. Details of the competition have yet to be formulated but wide publicity would be given to it in the coming months.

The Examining Board Report was presented on behalf of Dr. R.C. Close and subsequent discussion on student matters was an indication of the importance of, and the interest displayed in this aspect of the Institute's activities. Discussion ranged from ways to improve practical training, employment opportunities for students, venues for oral and practical examinations, to the financial requirements for conducting the administration of the student body.

Acknowledgements

Mr. P.J. Jew spoke in acknowledgement of the untiring work done by Auckland District Council members to stage the 1983 A.G.M. and Conference. While particular mention was made of Mrs. Jean Veal's excellent work as conference secretary, the contribution of many others was acknowledged with grateful thanks.

In closing the Meeting the Chairman paid tribute to the retiring President Dr. J.D. Atkinson for more than fulfilling his role for so many years. His wisdom and guidance would be

sadly missed, but all concerned looked forward to a continuance of these attributes from the new President, Mr. Ralph Ballinger. Mr. Taylor also thanked members for their attendance, Auckland District Council for hosting the Conference and invited everyone to enjoy the remainder of the Conference programme. It was encouraging to see such high interest in the affairs of the Institute and the tenor of this Jubilee Conference augurs well for the future of R.N.Z.I.H.

DEADLINE DATES FOR THE BULLETIN

Articles, letters, news items and illustrations forwarded for publication in the Bulletin should be in the hands of the editor by the following dates for the respective issues :

Spring	-	1st September
Summer	-	21st November
Autumn	-	1st March
Winter	-	1st June

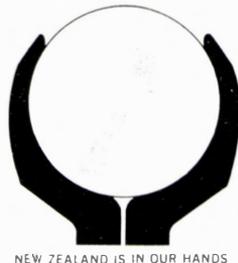
Material submitted for publication after these dates may be published in that issue if time and space allows.

CONSERVATION WEEK 1983

30 JULY - 7 AUGUST

FORGOTTEN HABITATS MATTER

Conservation Week 1983 will feature some of New Zealand's less well known habitats. These habitats include : Alpine tussock grassland; swamps and bogs; coastal and lowland forest remnants; salt marshes; mangrove swamps; sand dunes; man-made habitats - windbreaks, pasture land, farm ponds and ditches, orchards, roadside verges, parks and gardens.



These habitats are part of our heritage and they are unique, once gone they can never be replaced. Most also have great scientific and educational value, and all provide a home for a large number of plant and animal species. Please give support to the campaign which aims to encourage people to take responsibility for their own environment.

NOTABLE & HISTORIC TREES COMMITTEE ANNUAL REPORT

Committee

The new secretary is Mrs. Norma Goodman who replaces David Rowe. Mrs. Goodman is a trained shorthand typist with a degree in business management and therefore brings to the committee invaluable skills. We hope that she will be with us for a long time.

Members of the committee now include three landscape architects from the M.O.W. and Parks Dept. W.C.C., and a recent graduate from Lincoln College; the head gardener of the Botanic Gardens who is also an expert in street tree planting; an ex foreman of the Botanic gardens who is now a free lance horticulturist; and myself, a researcher on early plant introductions into N.Z. for Historic Places Trust. Mick Reece has moved to Dunedin but remains as a committeeman at large as does Chris Howden Auckland and Graeme Nind Waimairi C.C.

The committee, with its responsibility to the National Executive of R.N.Z.I.H. consults and reports to them at regular intervals. It appoints tree registration officers. As far as possible it liaises with District Councils. However it is becoming increasingly evident that further promotion and expansion of the scheme is dependant on the efforts of the committee whose commitment is solely to the registration of Historic and Notable Trees. It could be that the setting up of similar small committees interested only in identification, preservation and registration, together with the tree registration officer in each major area would best serve the needs of the scheme. As an example, Wellington District Council Executive members were each allocated a few trees taken from Burstall's lists and asked to process them. In spite of the initial enthusiasm results to date have not been encouraging. The same may be said of other District Councils where members are committed to other aspects of horticulture in their areas.

Publicity

Publicity needs special attention and during the next 12 months it is hoped that the committee will be able to extend activities in this direction. The joint brochure with Historic Places Trust has been well received with numerous enquiries, the only disadvantage being in the cost of servicing them. It must be emphasised that these enquiries are of course publicising the R.N.Z.I.H. more and more. An extremely professional display model for the promotion of Historic and Notable Trees has been completed and is presented with this report. I wish to thank all concerned for this splendid effort.

Coupled with publicity is education. There are still Borough and City Councils who do not yet have in their ordinances provision for tree preservation. Some Council staff, Works Dept. staff, Town Clerks, City and Borough Engineers and members of the public do not understand the essential needs of trees so

that bitumen is still being laid hard up to the trunks of trees. An example of this would be at Eastbourne in Wellington where as a result of this practice 5 Norfolk Island pines are endangered. There are other examples and the committee have helped to safeguard some trees because of their vigilance. Trees are still regarded as expendable. The registration of trees draws attention to the possibilities of tree retention, the need for trees for the essentials for healthy growth, and the need for correct tree pruning.

We have approached the Three Streams Conservation Trust suggesting liaison, but have not had any reply. Currently we are the only ones with an established scheme of registration on a national basis and with tree registration officers appointed in many areas. However we need to be more widely known and recognised as the authority to be consulted on all matters related to preservation and registration. This is not the case at present. We are educating our students in the planting of trees - it is logical to continue this education by actively identifying, registering and preserving our heritage of trees, both native and exotic.

Historic Research and Publicity

Research is revealing the history of the planting of trees in early gardens such as Old Government House now part of the University of Auckland, in the Botanic Gardens in Wellington, and in areas under Historic Places Trust, to name but a few. It appears that it might be preferable to initiate a third category of registration, e.g. "Historic Planting" or some suitable title where in such areas historic trees are identified but not registered individually. The compilation of such lists of trees growing in these areas would be an invaluable document in the years to come.

More registration of trees planted by people of note, or of historical interest should be recorded in our registers, particularly if those trees are endangered.

It is desirable to have a designation over areas where historic and important gardens once were. Examples are Masefield Way in Karori where once the Karori Tea Gardens were, and recognised by the W.C.C. with an "AREA OF BEAUTY" designation. Remnants of what were the two finest gardens in the southern hemisphere, namely Ludlam's and Mason's in Lower Hutt could have a designation of "Historic Horticultural Significance" placed on them. In Auckland, St. Celia deserves a designation because of its historic skyline clearly featuring the original front and rear entrances composed of *Quercus ilex*.

Old camellias need to be re-identified and registered and perhaps the Camellia Society should be asked to do this for us.

We need to identify and possibly register fruit trees dating back to the 1830's and the advent of European Colonisation and the cradle of horticulture in N.Z. Fruit trees and Camellias are excellent examples of plant material where retention of the material is invaluable in the preservation of the Gene Pool.

Trees Registered

Reasonable progress has been made to date with over 60 trees now being registered with a number also under investigation. A pleasing number have come from Dunedin thus fulfilling Gavin Henderson's pledge at the A.G.M. two years ago to work towards obtaining a more even spread of trees on the national register. A number of trees have been submitted from Whangarei but unfortunately they have not been entered on the correct forms, hence the delay in registration. There is a good coverage of trees from Blenheim thanks to the work of Ralph Ballinger. There are significantly low registrations from Auckland, Rotorua/Taupo, Nelson and Westland. With this in mind the committee decided to commence the processing of Burstall's lists, firstly to ascertain if the trees are still alive and if so if the owners are willing to register them. Two areas were chosen as pilot areas, Hawkes Bay and the Wairarapa. Results are encouraging. Mr. Burstall is himself interested in the results and a list of those trees no longer alive is being kept. It is understood that the Forestry Dept. in Nelson is undertaking similar exercise in that area but as yet we have not been able to liaise with those working on this project.

Finance

A separate financial report is attached. It is necessary for the committee to have adequate funds if the extension of its work is to proceed. Postage also is a considerable item and the costs of signs and signwriting has risen dramatically. A further environmental grant would be invaluable at this time.

Conclusion

The R.N.Z.I.H. Historic and Notable Trees scheme has the potential for considerable expansion, placing our organisation in the forefront of environmental protection on matters relating to horticulture and tree preservation. With a Royal Charter this is the position that we should hold. We have recognition for our work in student education in certain areas but even this is not known to all staff of Botany Departments in the Universities. We are not seeking to repeat work already done by others except as a means of identifying and registering our important trees. When this is at a level suitably recognisable it will then be possible for this Institute, in conjunction with the Parks Depts., Regional Authorities and Historic Places Trust to move towards strengthening the law so that greater protection for our trees along lines common overseas can be instituted. Failure can only weaken the image of the R.N.Z.I.H.

Thanks

I wish to place on record my thanks to members of the committee for their drive and energy which has become very encouraging these last few months and ask that all members of the Institute, including students, work towards the further promotion of this worthwhile scheme.

- Winsome Shepherd
Convenor
May 1983.

EXAMINING BOARD ANNUAL REPORT MAY 1983

Ladies and Gentlemen,

The Examining Board of the R.N.Z.I.H. continues to have an important role in the overall activities of the Institute. This importance can be gauged from the increasing number of students registered with the Institute. Since the last report the Board has met on three occasions, and has considered a number of aspects of concern as well as more routine matters. Much time and effort is given freely by Board members and this certainly appreciated by myself as Chairman and also by the Institute.

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 3 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. Detailed prescriptions of Parts A, B and C are provided in the Notice. Tuition is provided by the N.Z. Technical Correspondence Institute, and training guides and records books have been provided to new entrants to horticultural retailing by the Horticultural Training Committee of the Agricultural Training Council.

It is hoped that this qualification will be recognized as essential for all working in garden centres, especially since these persons play an important advisory role in their contact with the public.

There has been in 1982 and 1983, an increase in the number of persons registering for the H.S.C., and it is expected that the numbers will increase as more become aware of the qualification and its value.

Copies of the Examinations Notice and a relevant brochure are available from the Secretary.

2. "Training Opportunities and Careers in Horticulture"

At present there is no single publication that brings together all of the information on this topic. The Board considers the production of a special publication is very necessary, so as to provide concise details of all training possibilities and careers in horticulture. A publication of this nature was produced over twenty years ago. It is essential that a new one is produced because of the additions and changes that have taken place.

With assistance from the Labour Department, it has been possible to employ a person full-time on this important project. Much information has been obtained from a variety of sources. This is being assembled into a form that would be suitable for inclusion as a booklet. The R.N.Z.I.H. will be able to provide some finance for this project but it is envisaged that the various horticultural industries in New Zealand will be approached to assist in the financing of the booklet. Decisions have yet to be made on the means of distribution and sale of such a booklet.

3. Revision of National Diploma in Horticulture

The existing examinations approval notice was gazetted on 11 November, 1971, after a very thorough and careful revision of the syllabi in existence at the time. With horticulture expanding rapidly, it is considered that a number of changes are necessary in the present examinations. Topics likely to be reviewed are as follows:

- a) the number of subjects in each of the schedules;
- b) the relevance of the content in each of the subjects;
- c) the number and timing of the oral and practicals in the courses as a whole;
- d) the preparation of new schedules or the addition of separate topics to existing schedules, e.g. training in cut flower production could form part of Schedule IV nursery management.

The revision of the N.D.H. has begun, but it is expected that it will take approximately two years to complete. The Board will need to approve any changes, and then these will be circulated to grower organizations for their comments and approval. Then there will need to be time for legal drafting before presentation to Parliament.

4. Tuition in Fruit Production

After obtaining support from the N.Z. Fruitgrowers' Federation, the Board asked the Department of Education to provide, through the New Zealand Technical Correspondence Institute (T.C.I.), tuition in some of the subjects in the N.D.H. (Schedule 2 - Fruit). The Department has agreed to this, and the T.C.I. have either prepared or are writing assignments for some of the Schedule 2 subjects.

5. Public Relations

The Board is well aware that more effort is required to inform all engaged in horticulture of the work of the Board. The wide-ranging activities in the organization and administration of examinations must be publicized in industry journals as well as in more general publications, e.g. Horticulture News. More attention will be given to this aspect in the 1983-84 year.

6. Examinations Officer

This position was advertised recently, three applicants were interviewed, and a person has been invited to accept the position. The work involves the administration of all aspects of the written and practical examinations. This will relieve the Secretary of this task and enable him to work on other aspects of the Board's activities and those of the R.N.Z.I.H.

7. Award of Diplomas, Certificates and Prizes

At the January and May meetings the Board 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.

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 1,096 (as at 10 May 1983).

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. who provide tuition for the students.

1982 Examinations

A total of 438 students were examined in the various certificate and diploma options in November 1982. This involved 1,180 written subject entries and over 60 individual subject examination papers. In addition, there were 150 candidates for N.D.H. Oral and Practical examinations, 8 candidates for H.S.C. Oral and Practical examinations, and 78 candidates for the C.H.P. (Cadet) Oral and Practical examinations.

Written examinations were conducted in over 30 separate venues throughout the country, and there were 8 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 in 1983/84.

Financial Requirements

The 1982 Annual Accounts showed a surplus of \$6,631 in the Examinations Account. This results mainly from the increase in the level of examination entry fees approved by National Executive at the beginning of the year, together with increased student numbers qualifying for the per capita Government Grant. The surplus achieved will not only help to offset a series of deficits in past years but also will act as a hedge against inflation during 1983. Income must be more than maintained at present levels to meet costs of additional staff and rising costs of other items of expenditure and it will again be necessary to seek an increase in the Government Grant in 1983. The Examining Board has the responsibility of making appropriate recommendations to National Executive, both to ensure income is sufficient to meet expenditure and that student contributions equate more closely with the amount received from Government.

Acknowledgements

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

The Board expresses its gratitude to the Auckland Regional Authority, 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 Palmers Garden Centre, Auckland, Twigland Garden Centre, Upper Hutt, and Cashmere Downs Nurseries, Christchurch, for hosting the Horticultural Sales Certificate Oral and Practical examinations.

Thanks are extended to the Chairmen and Examiners of Horticultural Cadets in Auckland, Tauranga, Hastings and Nelson, and to Mrs J. Amos, Mrs K. Longdon, Mr R. Holland, Mr N. Weal, Mr R. Lucas, Mr P. Jew, Mr E. Butcher, Mr N. Drain, Mr J. Hume, Mr D. McCallum, Mr G. Henderson, Mr J.O. Taylor, Mr G. Paterson and the many other people who gave their personal assistance to the Institute's examinations. The work of the N.Z. Technical Correspondence Institute in providing tuition for students, and in supporting the examination system, also is gratefully acknowledged.

RONALD C. CLOSE
Chairman, Examining Board

APPENDIX TO EXAMINING BOARD REPORT

Registrations

Total number of students registered (as at 10 May 1983) : 1,096

Numbers registered in:

N.D.H. Schedule I	- Amenity Horticulture	546
"	" II - Fruit Production	141
"	" III - Vegetable Production	46
"	" IV - Nursery Management	249
Horticultural Sales Certificate		62
National Diploma of Apiculture		16
Registered, current address unknown		36

Examinations

Written examinations

Number of candidates examined in 1982 - 438

N.D.H. Oral & Practical Examinations

Auckland	- Schedules I and IV	61
Lower Hutt	- " " " "	28
Christchurch	- " " " "	45
Levin	- Schedules II and III	16

H.S.C. Oral & Practical

Auckland	2
Wellington	3
Christchurch	3

Certificate in Horticultural Practice

Auckland	2
Tauranga	44
Hastings	19
Nelson	13

GRADUATES - 1983 EXAMINATIONS.

NATIONAL CERTIFICATE IN HORTICULTURE

SCHEDULE I

AUGUST P.L.	-	MASTERTON	LAW Ms. M.J.	-	PALMERSTON NORTH
AUSTIN F.J. Ms.	-	CHRISTCHURCH	LEVERIDGE D.E.	-	WANGANUI
BOOTH J.S.	-	CHRISTCHURCH	McKENZIE B.	-	DUNEDIN
BRUCE P.A.	-	DARGAVILLE	McLAY W.R.	-	TIMARU
CONN R.R.	-	HASTINGS	MOONEY Ms. C.I.	-	DUNEDIN
CORLETT N.	-	AUCKLAND	MORTLOCK L.	-	CHRISTCHURCH
DONALD D.J.	-	HAMILTON	OVERTON L.J.M.	-	HAMILTON
GAVIN Mrs.J.K.	-	WHANGAREI	ROBERTSON Ms M.A.	-	LEVIN
GIELENS G.	-	HASTINGS	ROBERTSON Ms.P.F.	-	WHANGAREI
GRANT K.A.	-	NELSON	SIMPSON G.A.	-	WANGANUI
HANNAN C.W.	-	WELLINGTON	STEWART Mrs. R.G.	-	AUCKLAND
HEENAN P.B.	-	DUNEDIN	TAYLOR K.O.M.	-	WELLINGTON
HOLLIER R.J.	-	AUCKLAND	THOMPSON M.W.	-	AUCKLAND
GRAHAM P.R.	-	AUSTRALIA	TOHILL D.T.	-	KERIKERI
KEOWN Mrs. L.	-	CHRISTCHURCH	WILKINSON C.J.	-	WELLINGTON
LAW A.J.H.	-	AUCKLAND	WILLIAMS W.D.	-	DUNEDIN
WRIGHT A.W.	-	AUCKLAND	WOOLLEY P.R.	-	AUCKLAND

SCHEDULE II

GEELEN J.A.R.	-	HASTINGS
SHINGLER J.V.	-	AUCKLAND
STENT C.L.	-	HASTINGS

SCHEDULE III

BORST N.K.	-	LEVIN
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NATIONAL DIPLOMA IN HORTICULTURE

SCHEDULE I

REECE M.J.	-	DUNEDIN
ROSSITER G.G.	-	HAMILTON
DANIELS M.	-	CHRISTCHURCH
MILLS J.	-	HASTINGS

SCHEDULE IV

GRINTER K.R.	-	HAVELOCK NORTH
MATTSON L.T.	-	NEW PLYMOUTH

HORTICULTURAL SALES CERTIFICATE (Old syllabus)

BROUNTS Miss J.A.	-	PARAPARAUMU
McILROY Miss A.E.	-	ASHBURTON
MARTIN Miss L.T.	-	HAMILTON
MEACHAM Mrs. A.M.	-	WELLINGTON
MOFFAT Miss L,J,	-	CHRISTCHURCH
OFFICER Mrs.J.	-	AUCKLAND
WINTER G.D.	-	MASTERTON

CERTIFICATE IN HORTICULTURAL PRACTICE - AWARDS 1982

Citrus/Sub-Tropical Fruit

Tauranga

AKEN, A.W.
BARKER, K.F.
BOYES, Miss A.M.
CHISNALL, P.C.
CLAY, R.M.A.
DENNISON, S.J.
FARRELLY, K.B.
FOWLER, T.R.
FREW, A.D.
GEUZE, T.S.
GODBER, D.T.
HETHERINGTON, M.
HUME, G.S.
HUTCHINGS, B.W.
JENKINS, B.C.
KENNA, S.J.
LLOYD, D.C.
MCDONALD, W.J.
MILLER, T.A.
NEWITT, J.
O'CALLAGHAN, R.G.
PICKERING, J.D.
PILKINGTON, J.L.
PRIEST, N.G.
RAPLEY, J.D.
SEED, R.L.
SOMERFIELD, M.R.
THOMPSON, D.G.
WILLIAMSON, T.G.
WOOD, B.J.
WOODERSON, M.D.
YOUNG, A.C.
YOUNGMAN, A.G.

Tobacco

Motueka

ALLRED, D.I.

Pip/Stone Fruit

Hastings

ARBUCKLE, A.L.
ARLDGE, L.M.
BARRETT, S.D.
DUNCAN, R.J.
JEFFERY, D.E.
LANE, Miss P.A.
MASTERSON, T.G.
MATTHEWS, B.D.R.
MAWSON, I.P.
NAPIER, R.E.
PATULLO, A.N.
SCOTT, P.G.
STENT, C.L.
TAYLOR, T.E.
WIIG, R.S.
WILLIAMS, M.W.
WATERHOUSE, D.J.

Nelson

BIGNELL, G.A.
CHRISTIE, G.D.
COGGINS, J.T.
HENDRICKSON, A.B.
HODGES, P.J.
IVORY, T.D.
LAMB, P.S.
OATES, Miss L.G.
OWENS, R.J.
STRACHAN, S.C.
TURNER, B.C.

Outdoor Vegetable - Hastings

JAMES, M.C.

Glasshouse Vegetable - Auckland

PEGRUME, K.R.
VAN BEYNEN, D.M.

CONGRATULATIONS

Congratulations to the following winners of prizes for meritorious performance in the 1982 examinations :

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

MISS P.F. ROBERTSON - RUAKAKA

DAVID TANNOCK PRIZE - For highest marks in O & P (No.21) Schedule I

M.C. DAVIS - CHRISTCHURCH

JUNIOR MEMORIAL PRIZE - for highest marks in O & P I (No.9) all Schedules.

C.S. CLIFFORD - OTAKI

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

MRS. J. LAURENSEN - HOBSONVILLE

N.Z. VEGETABLE & PRODUCE GROWERS' FEDERATION PRIZE :

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

M.P. VAN TILBURG - AUCKLAND

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

MRS. J. TODD - AUCKLAND

N.Z. NURSERYMEN'S ASSOCIATION PRIZE - for the best record for the year in Schedule IV.

A.D. DE JOUX - KERI KERI

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.

C.L. STENT - HASTINGS

WHANGAREI DISTRICT COUNCIL PRIZE - for the best thesis presented in Schedule IV (Nursery Management)

L.T.W. MATTSO - NEW PLYMOUTH

NEWS RELEASE

BROADBANK NATIONAL GARDEN COMPETITION

R.N.Z.I.H. is proud to announce its association with the Broadbank Group and T.V. New Zealand in the Broadbank National Garden Competition which will be conducted during January and February 1984. Details of this exciting competition, which will carry a winners prize of such dimensions that garden lovers everywhere will be clamouring to enter, are currently being formulated, and will be announced by the sponsors in the next few months. The role of R.N.Z.I.H. will be administrative and to organise entries and judging which will be on a regional and national basis. District Councils are asked to note that shortly they will be receiving requests to organise regional judging within their own areas and should now be giving thought to the selection of judges for this purpose.

Details of the competition will be sent to District Councils as soon as they have been finalised.

STONEFRUIT EXPORTS REPORT

(From 'The Orchardist of New Zealand' May 1983)

At the Stonefruit Advisory Committee meeting, Mr. D. Turner presented the exporters' report on the stonefruit season just past.

Generally, 80% of the nectarines exported went to the Australian market, whilst 70% of peach exports went to the U.S.A.

NORTH ISLAND

Nectarines

These had a very good market response. There were increased sales into Brisbane and Sydney, although initial returns, particularly in January and February, were affected by local production. Later returns to growers were increased dramatically, due to the market shortening, and the prices being achieved by South Island fruit.

Peaches

Pre-Christmas varieties suffered due to :

1. Very heavy supplies of Chilean fruit on the American market.
2. Size and colour were down on previous years.
3. Australia had the largest production in the last 12 years.

Later varieties of peaches were well received in U.S.A. and Australia, particularly O'Henry. However the quantities and quality of Chilean fruit made regular good returns difficult on the American market.

SOUTH ISLAND

Nectarines

The reduced quantity of nectarines created some very difficult marketing problems. These were :

1. With the market rising as it did, exporters fought for every bit of fruit.
2. Growers held fruit in expectation of better returns.
3. The market place to some extent became disillusioned with New Zealand exporters, who had to try to take everything out of the market, to guarantee supplies from growers.
4. Growers packed and exporters took inferior quality fruit to fulfil their commitments.

6. Prices returned to the grower were exceptional, particularly in the last phase, when the price reached \$15.50 a tray.
7. The general consensus was that overall quality was not as good as in previous years, the comment being that fruit looked good, but when eaten was dry.

Peaches

Peach quantities were not so drastically affected and as a result more orderly marketing was possible.

1. Generally peaches were very well received. There were isolated cases of fruit being stored for too long (i.e. dehydration, skin slip).
2. Greater market spread was achieved due to realistic returns to growers.
3. Encouraging quantities of peaches were shipped to Australia, late in the season as Australian supplies dwindled.
4. Chile continued to be a major factor in the American market, affecting returns, with their fruit quality showing improvement.

Cherries

An excellent growing season was reflected in a very good product being exported to world markets.

Acceptance in the major market of the U.S.A. was very good. Price, however, continued to be a problem against Chilean fruit.

Increased quantities were shipped to new markets, including South East Asia. Europe became uncompetitive because of :

1. Transportation Costs.
2. Depressed European currency.
3. Chilean and South American supplies.

Apricots

The very bad growing conditions affected the quantity of apricots available for export.

1. The quality of first-grade export quantities was well down on the previous year's.
2. Small quantities of Sun Drop/Stevens were received.
3. There were instances of local market fruit being exported.
4. Increased quantities of apricots were exported to the Middle East in case lots.

DISTRICT COUNCIL NEWS

BAY OF PLENTY

This past year, being our district's centennial, has been a busy one. Our area has taken its share of work in the celebrations and we assisted the Tauranga Federation of Garden Clubs put on a function in the Town Hall, which was very successful. Over \$4,000 was raised to create a suitable memorial for the centennial year for the city. We also planted a large group of rhododendrons in Faulkner Park as our own commemorative gesture. Included in the programme during the past year have been visits to local gardens, an experimental orchard growing new varieties of fruit, rose gardens, and the orchard home at Te Puke of the variegated lemon. Nearer home members visited a local grower of carnations.

We have conducted two successful shows in conjunction with the Camellia Society and the Rose Society. Being centennial year, two garden competitions were held, one in mid-summer and one in the spring. We paid for a street sign for the winning entry. We have had talks on China, conifers, export shrubs, carnations, gerberas, rhododendrons, irises and perennials, illustrated with colourful slides. A talk and slides of the Brazilian mountains and our own National Park also on vegetables and bulbs. We have had a busy and successful year and membership numbers remain steady.

As usual, we ended the year with a barbecue at the home of Mr. and Mrs. Hector Collins.

- D. Hardwick
Assistant Secretary
March 1983

OTAGO

It is my pleasure to present the annual report of the Otago District Council of the Royal New Zealand Institute of Horticulture for 1982-83.

The past year's activities have included several interesting projects beginning with a pruning demonstration at the Botanic Gardens in July. More than 50 people attended this, and Gavin Henderson and Neville Struthers showed different facets of pruning, using various small fruits and mature fruit trees in the garden that was formerly the Superintendent's residence.

In August members of the Council took part in a tree planting in Unity Park, and were also joined by representatives of other horticultural organisations in the city including the Dunedin Horticultural Society, Otago Rose Society, Tree Society, Dunedin Floral Art Society and the Cactus and Succulent Society.

October saw a good attendance when Brent McKenzie and Peter Heenan talked of botanic gardens they had visited during a recent Australian tour; Council members once again supervised when R.N.Z.I.H. examinations were held in November; and an

early evening tour of historic and notable trees about the city attracted a large number of people. This took us to several beautiful gardens and to see those interesting trees. Neville Struthers, our tree officer, spoke about the trees seen.

A similar tour in February saw another large group on an evening walkabout at the University. Robert Scott was the guide on that occasion.

During the year a donation of \$100 was made towards facilities at the Visitor Education Centre which we have been able to use for our Council meetings as well as last year's A.G.M. and the October meeting.

I would like to thank all Council members for their support and give special thanks to the Secretary, Robert Scott, who has also compiled the newsletters, and to our treasurer, Robin Bagley.

- Barbara Cave F.R.I.H.
President

WELLINGTON

It is pleasing to be able to report that after a little soul searching at the start of last year, the District Council has arrived at a point where we have some confidence that we are fulfilling a need.

The District Council reached the view that in attempting to cater for all needs in the past we were satisfying none. We now hold bi-monthly public meetings, at the same venue, Turnbull House in central Wellington at 5.30 - 7.00 p.m. Our meetings are aimed at the working or professional horticulturist although we find we are able to maintain the amateurs' interest.

Last year our meetings covered the Beautiful New Zealand Scheme, from a landscape architect's view and later from a nurseryman, a talk on the Wellington Regional Landscape Plan, and on miniaturised pot plants for export.

This year following the same format we have had a joint meeting with another Society on the Bolton Street Memorial Park and we are looking forward to a celebrity horticultural quiz (compere Harold Hall) for our Annual General Meeting.

Apart from administrative matters we have debated and taken up local horticulture issues at an Executive level.

A matter that has caused us concern has been the lack of practical experience available to N.D.H. students. This year we are repeating a student tutorial programme. Last year an early-evening meeting and a Sunday afternoon field trip were held each month from March to October, and a similar programme but with fewer field trips has been planned for this year.

The aim of this programme is to

1. Assist students to gain the practical skills required to pass the oral and practical examinations
2. Broaden the students' horticultural knowledge
3. Encourage students to meet and learn from each other's experience
4. Help students to identify with R.N.Z.I.H.

The early-evening meetings are held at the Interpretive Centre, Otari Plant Museum, an excellent venue for these sessions. At each meeting part of the time is spent on plant identification, and on the recognition of disease and pest problems, demonstrating with living specimens and colour slides. As well, a speaker talks on the main topic of the evening.

Topics covered last year included how to keep a diary, equipment to use when applying pesticides, integrated pest management, methods of seed collecting, budding and grafting, examination techniques, and aspects of horticulture overseas. New topics to be covered in the 1983 programme are a botany practical, soil science practical, pruning principles, and seed treatments.

An average of about 15 students attended these meetings in 1982, and the two meetings held so far this year have been attended by 20 or more students, many of whom have just started their studies.

Last year field trips were held to :

1. Wellington City Council Parks Department nursery at Berhampore where various propagation techniques were demonstrated
2. Government House for fruit pruning demonstration
3. Lower Hutt City Council Parks Department nursery at Summit Road
4. Wellington Botanic Gardens (3 trips) for plant identification in the field.

The attendance at several of the field trips was disappointing and so it was decided to reduce the number this year.

We were saddened at the death of Joe Short last year. He was an active and valued member of the District Council.

- Diane Manzies
Hon. Secretary

CANTERBURY

February - Field Trip to Kaituna Valley.

After a delightful trip we arrived at the picnic area where Hugh Wilson escorted us around several of the tracks, pointing out various plants and explaining their habits. Afterwards the party drove further up the valley and started walking up the Pack Track which leads over the hill to the Orton Bradley Estate. As we climbed, Hugh was able to point out a new range of plants and explain the differences between the juvenile and adult stages.

March

On Tuesday 22nd March at 8.00 p.m. our A.G.M. was held in the Committee Room of the Horticultural Hall, Gloucester St. The following people were elected.

Chairman	- D. Riach	nominated D. Moyle, 2nd G. Nind
Secretary/ Treasurer	- D. Moyle	nominated D. Riach, 2nd K. Garrett

Committee : G. Nind, J. Taylor, R. Edwards, M. Spurway,
G. Clark, N. Owers, J. Allen, K. Garnett,
N. Drain, W. Fielding-Cotterell.

No vote was required with 10 nominees filling 10 positions.

After the formal business was completed Warwick Scadden, Curator of the Botanic Gardens gave a thought provoking address on 'A Botanic Gardens - Value to a City'

May - (24th)

Before a crowd of over 60 members and friends, Dr. David Given of the D.S.I.R., noted author and botanist presented the awards and diplomas to :

P. Robertson, N.C.H. & P.J. Skellerup A.H.R.I.H. Prize
M.C. Daniels, N.D.H.
D. Crerar, N.C.H.
A. Reese, N.C.H.
L. Keown, N.C.H.
A. McIlroy, Horticultural Sales Certificate
M. Davis, David Tannock Memorial Prize.

Mr. S. Challenger was presented with the Associate of Honour after the citation had been read by Mr. J.O. Taylor.

Following the presentations, Dr. Given gave an illustrated address on 'Rare and Endangered Species Throughout the World'.

Dr. Given showed how mankind had ravaged nature to such an extent that there was very little left for future generations.

With proper resource management and the setting up of collection centres, man has a chance of saving some of these endangered species.

NORTH TARANAKI

At the 42nd annual report of this branch presented in February 1983, the 47th year since the Institute's establishment in New Plymouth, the following summary of activities for 1982 was given :

Membership - An increase in the total with 229 members, 37 of whom are student members.

Meetings - 12 evening meetings and a variety of trips composed the programme of events as established over the years. Unfortunately the lack of student participation is still evident despite efforts to rectify this situation.

The subject matter of the horticultural topics presented varied and the calibre of the speakers was very high and included :

Local A.G.M. - Mr. & Mrs. Proffitt - talk on "Cultivation of Fuchsias".

The work of the local branch of the Tree Crop Association - Mr. D. Barton.

Movies of the Hollyford and Routeburn Tracks - Mr. T. Smith + panel discussion with Mr. G. Fuller, Mr. J. Rumball and Mr. I. McDowell. Held at Waitara for benefit of students and also attended by Urenui Garden Circle.

National A.G.M. Hawera. Banks Lecture by Mr. J. Goodwin.

World Garden Tour - Mr. G. Smith, Curator of Pukeiti Rhododendron Trust.

International Dendrology Tour of Australia and Tasmania - Mrs. M. Scrivener.

Floral Art and Pot Pourri - Mrs. R. Willis

Propagation of Indoor Plants and Garden Hints - Mr. K. Davey
Proteaceous flowers as an export crop - Mr. G. Paulin

Export Production - Mr. B. Van Dyke

Social Evening, Pot luck tea.

Outings - Local gardens, bush walks, 4 day trip to Kati Kati, Waitara, Eltham, Stratford and Urenui Gardens, Egmont Village and produce small holdings, 3 day trip to Marton District.

Flower of the Week Display Continued in the New Plymouth public library through the co-operation of the Parks & Recreation Department.

Arbor Day Project Members were asked to participate at the Rotomanu site.

Library - The Ann Burgess Memorial Library continues to serve members and students alike being housed in the New Plymouth Polytechnic.

Secretary - Mrs. M. Ward was sincerely thanked for her term as secretary and was congratulated on her achievement of winning the small garden competition in New Plymouth.

Annie Leach Rumble Trust - Grants to the value of \$3,350 were distributed between 3 applicants.

Sincere thanks was given to all members committee or otherwise who assisted to make the season a success.

- C.I. McDowell
NORTH TARANAKI DISTRICT
COUNCIL PRESIDENT

JOB VACANCY

MANUREWA NEIGHBOURHOOD DEVELOPMENT UNIT

A position as Supervisor is available in the M.N.D.U. This job will require a person able to plan and put into practice the development of initially 8 ha of Market Garden. A knowledge of gardening is essential and an understanding of organic gardening would be helpful though not necessary.

You will be working with three other Supervisors plus twenty or more 15-18 year old male and female workers. The Department of Labour pays all wages including your own which will be in the vicinity of \$15,000 p.a. maximum.

Hours of work are 8.00 a.m. - 4.30 p.m. Monday - Friday. The whole project is designed to be labour intensive work rather than capital intensive and although we have some implements, preference is given to doing work by hand.

Under Department of Labour Regulations the Scheme is renewable every 12 months, and your employment would run through to April 1984 and be renewed for a further 12 months with the Department of Labour approval, continuing on an annual basis.

For further details write to :

Gerry Carr,
Co-ordinator
29 Beihlers Road,
Manurewa, Auckland
phone 267 2584

PRACTICAL SKILLS AND THE N.D.H. STUDENT

A PERSONAL VIEW BY MIKE OATES

The National Diploma in Horticulture is the highest practical horticultural qualification available in New Zealand. Horticultural workers obtaining this qualification are in great demand within the industry, and with the great boom in horticultural production, this demand is likely to increase. One of the great advantages of the N.D.H. is that it not only produces a person well versed in the principles of horticulture and the related sciences, but also produces someone who has developed practical skills through working on a horticultural property. In this article, I want to deal with the development of these practical skills and the problems involved in doing so.

When a person studies for the N.D.H. he/she must be employed in a horticultural occupation which has been approved by the R.N.Z.I.H. as one that will give the student good practical experience. Before obtaining the N.D.H., the student must have at least five years of such approved experience. The practical skills that a student learns during this time are examined in the Oral and Practical exams.

In theory, the student's experience at his/her place or work should adequately prepare him/her for these exams. In practice, this often isn't the case. Many students have never even practised some of the practical skills required in the Oral and Practical, never mind mastered them!! Why is this so, and what can be done to overcome it?

One of the main problems, as I see it, is the lack of good practical training for students at their place of work. Often students are working on a specialised nursery or orchard, which by its very operation cannot provide the range of practical skills required. On properties that can provide a wide range of practical work, many students find themselves doing fairly basic tasks with little variation from day to day. How can students who spend most of their time push hoeing or mowing grass verges ever hope to become proficient in budding, grafting, seed sowing, pruning and the like? Often when a student does manage to practise these skills, the standard of teaching is not what it should be. This is especially true when the student's supervisor is not experienced himself. If a skill is going to be taught, it should be taught by an experienced grower in the correct way.

In some cases, however, it is the students themselves who are at fault. Some are not prepared to show interest or enthusiasm at work, and expect everything to be spoonfed to them, while giving nothing in return.

There would seem to be, on the surface, so many problems that some people would say it's surprising that any students pass their O and P exams!! This is not the case and the majority of students do manage to become proficient in a wide range of practical skills. There is, however, in my opinion, much that can be done to improve the present situation. Students can go a long way to help themselves and below I have listed a few ways they can do this.

1. Many students work on properties where it is possible to practise many practical skills if they were given the chance. There's no harm in asking for a change in job or section, even for a day or two. Often the fact that you're interested and want to see how practical skills are done will help. If this is not possible, ask your boss or supervisor to demonstrate certain skills you're not sure of, in your own time if necessary. Most will be only too glad to help you.
2. Visit other nurseries, orchards, and so on, to see how they do things. Make notes on different practices and techniques they use. Always keep your eyes open, and don't be afraid to ask questions.
3. Attend any field days and seminars run in your area, especially if they are related to your area of work. They give you the chance to observe practical demonstrations and meet commercial growers.
4. Join societies such as the International Plant Propagators (IPPS). They hold field days throughout New Zealand with practical workshops on propagation. Their numbers are mostly commercial growers as well as horticultural scientists and lecturers. Members are only too happy to be of assistance.
5. Show enthusiasm and interest at work and you may be pleasantly surprised at your employer's response. Don't be afraid to ask questions, it's one of the best ways to learn.

There are also many ways we, as R.N.Z.I.H. members, can help the student. Many regional branches of the Institute are already doing much to help students develop practical skills by organising student meetings and practical workshops. These are run by members who give up many hours of their own time to give talks and demonstrate practical techniques. In Wellington, for example, evening meetings are held monthly from March until October. There are also Sunday field trips to local nurseries, the Botanic Gardens, and so on. The popularity of these meetings can be gauged by the fact that students often attend from Levin and Masterton, 1½ hours away.

I believe even more could be done, perhaps along the lines of voluntary co-operation between regional branches. A standardised programme could be worked out so that students in all parts of the country have the chance to learn practical skills. Of course, this sort of action is fraught with problems as many students are at different stages, and want to learn skills appropriate to their place of work. Perhaps the students themselves should have a say in what they want to learn.

Finally, we have to ask whether or not this type of scheme would work. Being a voluntary scheme it would depend not only on the willingness of members to give up their free time, but on students attending. It is the students' support which is crucial to success.

In concluding, I would hope that a little bit of interest has been stirred in the subject, and that as well as answering a few questions, I have also asked a few for you to answer. We must give the students of today all of the encouragement and help we

can, as many of them will be the supervisors and managers of tomorrow. In the end, however, it always comes back to the students. What do they want? I'd be only too glad to hear.

N.D.H. STUDENT PROGRAMME

To follow on from Mike's article the following is just one example of how some District Councils are helping the N.D.H. students. This is part of the programme run by the Wellington District Council for students. Attendance and support for this programme is strong in Wellington. Would this be the case in your district? Do you have such a programme that does not have the support of students? If so, what could be done about it?

June: Wednesday 22, 5.30 p.m.

Soil science practical session - examining soil texture and structure, soil testing. Container growing media. Plant identification. Pest and disease recognition.

July: Wednesday 20, 5.30 p.m.

Pruning principles - demonstration and discussion. Plant identification. Pest and disease recognition.

July: Sunday 24, 1.30 p.m.

Technical Correspondence Institute, Wyndrum Ave., L. Hutt. Demonstrations of pruning ornamentals and fruit trees.

August: Wednesday 24, 5.30 p.m.

Seed treatments. Seed collecting. Plant identification. Pest and disease recognition.

August: Sunday 28, 1.30 p.m.

W.C.C. Parks Dept. Berhampore Nursery, Emerson St. Demonstrations of seed sowing, pricking out and other nursery practices.

September: Wednesday 21, 5.30 p.m.

Budding and grafting techniques demonstrated. Plant identification. Pest and disease recognition.

September: Sunday 25, 1.30 p.m.

Meet at the top of the Cable Car.
Tour of the Wellington Botanic Gardens for plant identis.

STUDENT SECTION



Cynara scolymus
(GLOBE ARTICHOKE)

EDITORIAL

With exams approaching in Spring, now is a good opportunity to insulate oneself from the cold, wet weather and stay cosy and warm inside, catching up on T.C.I. assignments and perhaps even do some swot.

It's in this season that I appreciate working in a nursery with heated greenhouses, especially on a crisp Canterbury morning.

Many thanks to Allan Cameron's artistic contribution to this issue of the Bulletin.

For those students who have taken the advice above, and perhaps feel like a break from study, how about entering an article in our writing competition. With R.N.Z.I.H. subscriptions now due the prize money would certainly be handy. More details on page 31

Successful study.

- Merv Spurway

RUST FUNGI

IN N.Z. HORTICULTURE

by

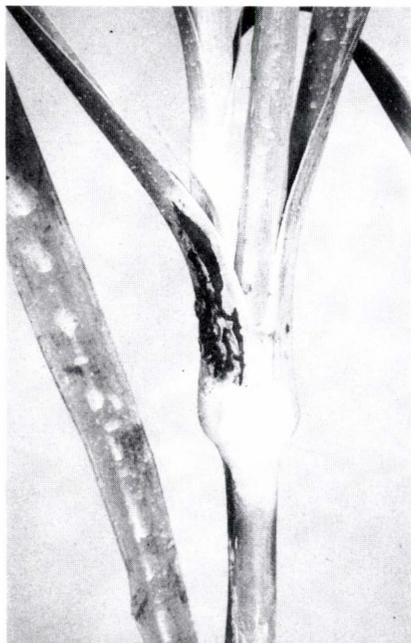
Miss J. Dingley, Mycologist, Auckland

Throughout the world rust fungi have always received special attention for they can at times cause considerable damage such as early defoliation, stem cankers and fruit lesions. Their control by chemicals is difficult as it entails frequent sprays with zineb (maneb and mancozeb can be used); the systemic fungicide oxycarboxin (Plantvax) unfortunately damages some ornamentals such as carnations and chrysanthemums but it is used most successfully to control cereal rusts; other systemic fungicides are now under test such as triadimefon (Bayleton) and biloxazol (Baycor). Plant breeding programmes usually include studies in rust resistance and the most successful control of these diseases is to grow cultivars resistant to the rust races present in the area.

Rust fungi are host specific - that is they attack only a single host species or a group of closely allied host plants. Usually cupshaped yellow aecia or distinctly erumpent reddish brown powdery masses of urediniospores are all that is present on the disease lesions. If life histories of rusts are studied it will be found that they have complicated life cycles involving a sequence of up to five different spore stages i.e. pycniospores, aeciospores, urediniospores, teliospores and basidiospores. All spore forms may be borne on a single host (autoecious) or on two totally unrelated host species (heteroecious); the pycnia and aecia are formed on one host and uredinia and telia on a totally unrelated host plant. In *Tranzschelia discolor* the stone fruit rust pycnia and aecia are formed on the garden anemone whilst uredinia and telia are formed on stone fruit host plants. Both aeciospores and urediniospores are wind distributed; the latter play an important role in the spread of the disease. Some species with this complicated life cycle are capable of surviving by the repetition of a single spore stage - usually uredinia, whilst others need the full life cycle of spore forms which may involve two host plants. In these heteroecious species this complicated life history forms a stumbling block in its establishment in new geographic areas.

In 1973 two species of poplar rust were recorded in New Zealand for the first time; it is presumed that urediniospores of these rusts were wind blown across the Tasman for they had been reported from New South Wales in 1972. They were identified as the European poplar rust *Melampsora larici-populnea* and the American poplar rust *M. medusae*. By 1976 the European rust had become so well established in the North Island of New Zealand that it threatened the health of old established shelter belts and plantations. Investigations showed that uredinia overwintered

on the semi-evergreen Lombardy poplars; the disease was not a problem in the South Island where poplar trees were truly deciduous. In contrast by 1976 the American poplar rust *M. medusae* was difficult to find except on a few trees in the North Auckland area. It is reported in Canada that this rust does not survive on poplar alone but needs to complete its life cycle. In both species pycnia and aecia are formed on conifer hosts. Aecia of *M. larici-populnea*, the European rust have now been observed in the Wellington area on both *Larix* spp. and on *Pinus radiata*. Now in New Zealand there are a number of cultivars of poplar that have proved to be resistant and these cultivars should be planted in the North Island.



Brown Rust, *Uromyces dianthi* on carnation



Puccinia chrysanthemi on chrysanthemum

Another species of *Melampsora* (*M. coleosporioides*) has recently been observed in this country and again only the uredinia have been recorded but this time it attacks the weeping willow (*Salix babylonica*). It occurs late in the season and probably causes early defoliation but fortunately its effect has not been as dramatic as the European poplar rust. *M. epitea* was recorded on pussy willow (*Salix caprae*) and related species in 1969; it appears to have little effect on the trees. From time to time rust diseases occur on weed species; they are rust species new to New Zealand, for example *Melampsora hypericorum* on tutsan (*Hypericum androsaemum*), *M. euphorbiae* on milk weed (*Euphorbia peplus*) and *Puccinia oxalidis* on *Oxalis* spp. (especially the bulbous species). In all cases the first effect of the rust has been dramatic but its long term effect depends entirely on the seasonal climatic conditions which are rarely suitable for a continuous rapid spread of the rust and a successful control of weed. Unfortunately these rust species can spread to desirable ornamental species of the same genus or closely allied genera.

Occasionally new species of rust have been introduced with seed probably with plant debris among the seed; infected seedlings must be quickly rogued out and destroyed and the plants kept well sprayed with zineb. From time to time rust is reported on seedlings of cineraria, cornflower, sunflower and violas and as these bedding plants are ephemeral the rust has not really established itself; in antirrhinum where some plants often overwinter the rust *Puccinia antirrhinii* has become well established.

In this country even though strict quarantine regulations have been enforced for a number of years new rust diseases still occur which suggests that infected propagating material has found its way into this country. In some cases the disease has been satisfactorily eradicated; in 1961 juniper rust was identified in Milton, the juniper tree and infected hawthorn (*Crataegus monogyna*) nearby were destroyed and no further rust infections have been observed. White rust on chrysanthemums (*Puccinia horiana*) - not to be confused with white rust on crucifers, gerbera and mesembryanthemums caused by a phycomycete belonging to the genus *Albugo*, was only eliminated after a most vigorous and prolonged eradication programme. Unfortunately mint rust (*Puccinia menthae*) and fuchsia rust (*Pucciniastrum pustulatum*) have now become well established.

New Zealand has a large number of rusts that are endemic and only attack plants that are native to New Zealand. *Puccinia coprosma* occurs on *Coprosma* spp., *Uredo phormii* on *Phormium* flax, *Aecidium disciforme* on *Hebe* spp., *Uromyces edwardsiae* on kowhai (*Sophora* spp.) are just a few. When exporting propagating material or nursery stock of New Zealand plants care must be taken to see that all material used is propagated from disease free stock plants.

Respect the New Zealand plant quarantine regulations; there are many destructive rusts not recorded in this country and a number could cause considerable alarm in forestry and horticulture.



Write For Cash Competition

R.N.Z.I.H. students are invited to enter in a writing competition for the best article on any horticultural topic of interest to the student.

This provides an opportunity not only to get your article in 'print' but also to win some CASH.

PRIZES

There are two sections :

Section A - Open to students studying towards N.C.H. or Horticultural Sales Certificate.

Section B - Open to students who have obtained an N.C.H. and are studying towards an N.D.H. Or N.D. Apiculture.

There are two prizes in each section

FIRST PRIZE \$20

SECOND PRIZE \$10

Entries will be judged on originality, content and presentation.

Conditions

1. The article must be your own work.
 2. The length - approx 1,000 - 2,000 words. Photographs and line drawings (not pencil) are welcome.
 3. Students must have their entries submitted to the 'Student Editor', P.O. Box 12, Lincoln College by August 31, 1983.
 4. Entries will be judged by the 'Editor' and 'Student's Editor' of the Bulletin.
 5. All articles entered remain the property of the R.N.Z.I.H.
 6. A list of prize winners will be published in the 'Spring' edition of 'Horticulture in New Zealand' and prize winning articles, along with others of merit, will be published in the 'Spring' and subsequent bulletins.
- P.S. Please write your name and section on all pages.

NEW ZEALAND INSTITUTE OF AGRICULTURAL SCIENCE

CONVENTION 1983: A.G.P.O.L.

WELLINGTON 22 - 26 AUGUST

The convention is being held at Victoria University and its main theme is to think about and contribute to the resolution of some of the most urgent and important problems facing New Zealand agricultural policy at present.

Some of the topics to be discussed under the Society for Horticultural Science programme are :

Implications of C.E.R. to N.Z. Horticulture;
Horticultural Education and Training;
Research & Development in Horticulture;
Research & Extension Priorities in Horticulture;
Kiwifruit Pollination;
A survey of Phylloxera in Poverty Bay vineyards;
Effects of summer pruning on maturity in Gala apples.

THE FUTURE FOR HERBS IN NEW ZEALAND

by
J. Lammerink, Crop Research Division, D.S.I.R. Christchurch
(From 'Commercial Grower' May, 1983)

Over the last 10 years, following a world-wide trend, a tremendous interest in herbs has developed in New Zealand. We have come a long way since the days when pie and peas, and fish and chips were about the only items on our restaurant menus. Now ethnic restaurants make generous use of herbs, people have increased leisure time and are becoming more adventurous in their home cooking, and there is a growing awareness of health foods and balanced diets, and a reaction against synthetic junk foods.

Herbs are basically plants containing aromatic substances that are used mainly for culinary purposes, including garlic. Other herbs, such as lavender, are grown for the production of essential oils that are used in the pharmaceutical and perfumery industries. The biggest group of herbs are the culinary leaf herbs.

Herb-growing has become a popular hobby, with many New Zealanders setting apart some of their garden for these versatile plants.

Varied uses

Leaf herbs contain a wealth of vitamins and minerals. For example, it has been established that parsley has a high vitamin C content, and is also rich in vitamin A. However, as they are only used in small quantities, the role of herbs in supplying vitamins is a secondary one. Their primary role of course, is flavouring food and making it more attractive and palatable. Herbs tend to increase our appetite, but whether this is good or bad is an open question.

For some people, herbs have yet another role. They believe the plants can cure a wide range of diseases. In China, herbs are valued for their medicinal properties. The essential oil of garlic has long been used in India in prevention and cure of coronary diseases. This has been confirmed by recent research and the active ingredient identified. However, some people attribute almost magical properties to herbs and herbal concoctions, but these can only be regarded as placebos.

Different parts of the plant are used in processing, depending on the species of herb. For instance, only the flowers of the lavender are used, as are the seeds of dill and fennel, the bulbs of garlic, the roots of the horseradish and of course the leaves of most other herbs.

Herbs can be annual, biennial or perennial plants. Sweet basil, dill and fennel are examples of the annuals. Parsley is a biennial, that is, a plant that flowers and sets seed in the second year. Tarragon, the mints and horseradish are herbaceous perennials, while thyme, lavender and sage are woody shrubs. The only tree species is the bay tree.

Most species of herbs belong to one of two families; the Umbelliferae or carrot family include dill, fennel, parsley, anise seed and caraway, and the Labiatae or mint family include basil, lavender, marjoram, oregano, rosemary, sage, summer and winter savory, and thyme, as well as the mints. Examples of species outside these two families are tarragon, which belongs to the Compositae or daisy family, horseradish which is a member of the Cruciferae or mustard family, and garlic and chives which are closely related to onions and belong to the Liliacea family.

Such knowledge can be useful for crop management. For example, umbelliferous herbs require similar sowing and weed control techniques. Labiates, such as sage, thyme, rosemary and mints are all easy to propagate by taking tip cuttings.

Let us look at the growing requirements for herbs. Most are easy to grow. They all prefer a well-drained soil, irrigation, and good harvesting conditions. Most leaf herbs also need good shelter to protect them from strong drying winds that can spoil the quality of leaves by scorching. Latitude, long sunshine hours and specific day and night temperatures are of particular importance for crops that are grown for essential oil extraction. There is no market for oil with an undesirable composition.

Marketing

Now we come to the question of selling the herbs. There may be local as well as export markets for fresh and processed herbs, but it should be realised that local markets are limited. Most New Zealanders grow a few herbs in their garden, but even if they didn't the total area needed to supply the New Zealand market with fresh or processed herbs would be small. For example, a patch of one square metre of parsley would be more than ample for the average family. With a population of only three million that would amount to a total of approximately 75 hectares.

So export is the name of the game, either of fresh products or in processed form. Perhaps we can cash in on the out-of-season production of fresh herbs for the Northern Hemisphere. Transport must be by air under chilled conditions. It requires an efficient network of growing, harvesting, transport, handling and delivery to the consumer. First-class quality is essential. In general, costs are likely to be high. Garlic of course is an exception, because it can be readily transported in bulk. Here the aim should be to penetrate the Japanese market. Again quality - which means appearance and pungency - are of overriding importance. Until access is gained to Japanese cultivars, New Zealand growers will have to be content with prices in Australia, the Pacific Islands and elsewhere.

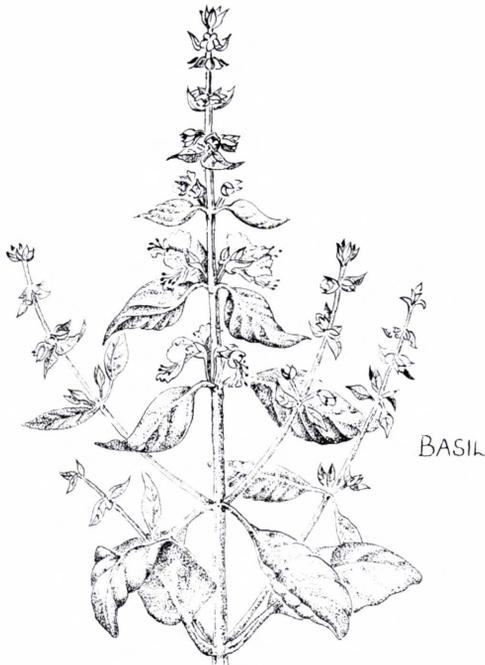
Export requirements

Apart from a small market for fresh produce, it is obvious that our best prospects lie in processing for export. An important step in establishing such an industry is market research. Answers should be found to the following questions :

1. What are the short-term and long-term demands?
2. What price levels can be anticipated for various processed herbs?

Contact should be made with large-scale users, such as food-processors, chain stores and hotel or restaurant groups. Such prospective clients will determine quality standards. Next, processing costs should be calculated, using the most efficient techniques for an optimum scale of operation. Raw material prices should be worked out with the grower. If these prices are attractive, efficient growers will be found within a reasonable radius of a proposed factory. There may be merit in establishing a joint venture enterprise with an overseas firm, especially if it provides access to additional technological expertise and perhaps even commercial crop cultivars.

Let us keep in mind that there is a considerable international competition in dehydrated herbs and essential oils, and local enterprise must be highly efficient to keep in the running. A processing factory must be assured of a regular supply of high-quality raw material. From the processor's point of view, it may be desirable to integrate growing, processing and marketing aspects in one enterprise.



U.S.

In 1975 American methods of herb-processing were investigated by Mr. H.J. Giesen. In Dixon, California, he visited a herb enterprise of 200 hectares. Well laid out, with overhead and furrow irrigation. The enterprise was run by a Chinese manager.

Culinary herbs were grown, which included dill (40 ha); marjoram (15 ha); oregano (65 ha); thyme (25 ha); sage (15 ha); rosemary (15 ha) & French tarragon (25 ha). Six large floor screen-driers were used. These were loaded outside and emptied inside the large shed for further processing, via de-leaving units for which they used adapted seed-cleaners with roller brushes over an endless screen. The stems were not used but burnt or composted. The leaf material was then graded by sieving units into fine and medium.

As an example, dill produced about 1100 kg/ha of clean dried leaf material, harvested six to eight weeks after sowing, at early flowering to get the best flavour. Packing was done in bulk cardboard drums with plastic liners and sealed-on tops. The place was excellently run, highly mechanised and clean, but naturally a little secretive, particularly about their machinery. Understandably they were also protective about seed of their varieties. The dried products from this company were supplied solely to a chain of Chinese food stores in the Western part of the United States.

What conclusion can we draw from this example? In order to compete in overseas markets, one must concentrate on high

quality which should be consistent from year to year. A reputation for quality products must be built up. This can be achieved only if all links in the production chain are strong, all the way from the seed-bed to the retail counter or hotel kitchen.

Prospects

The requirements for high-quality processed herbs are :

1. Good growing conditions and crop management, producing a uniform, weed, disease and insect free crop, that is also free of any pesticide residue.
2. Efficient mechanical harvesting of the crop at the correct stage of development.
3. Efficient dehydration techniques at the lowest possible costs. Some field curing may be possible to reduce the fuel bill.
4. Good storage and container export.
5. Constant monitoring of market requirements.

New Zealand has a good range of climatic conditions suitable for differing crops. Furthermore, the growers of this country have the adaptability and general expertise to grow excellent crops. So despite our small local market and its remoteness from overseas countries, the prospects for herbs are reasonably good, provided the job is undertaken in a fully professional manner.

PRUNING ORNAMENTAL APRICOTS

by

Paul Jamieson, Technical Assistant in Horticulture

New Plymouth

(Based on a Staff Training Exercise)

Fruiting apricots originate from *Prunus armeniaca* and most cultivars are generally budded onto this stock.

Flowering apricots are usually cultivars of *P. armeniaca* or *P. mume* e.g. *P. armeniaca* cv. 'Dawn' or *P. mume* 'The Geisha'.

With commercial fruiting cultivars of *P. armeniaca* pruning is based on a renewal of fruit spurs once a good structural frame work is established. Apricots fruit on short spurs on 1-2 year old wood. After 3-4 years most fruit buds loose vigour and become barren. Therefore we prune to replace branches comprised of older spurs, by selecting new lateral growths annually which is similar to the pruning of Japanese plums - *P. salicina*, but heavier. Healthy fruiting wood normally produces more blossom than necessary for a good crop, therefore if laterals are dense, some should be cut out and others cut back hard to promote new growth the following season. The remainder should be spaced as evenly as possible and headed back to 2/3rd the original length as they become too long and willowy if left. Spurs should also be thinned to reduce the potential crop to reasonable limits and assist growth of new wood for future fruiting.

Flowering Apricots

Present situation. Trees have been neglected to the extent that they now require major renovation.

i.e. mass of water shoots, low hanging branches, tops in wires, uneven shaping, excessive fruit development and generally unkept appearance.

Aim:

- to return to a symmetrical branch system.
- to remove dead and diseased wood.
- to thin and to remove excessive fruiting wood without ill effect to the seasons flowering
- to prune tops out of wires.
- to raise canopy
- to remove basal suckers and twiggy growth
- to balance older wood and production of young shoots.

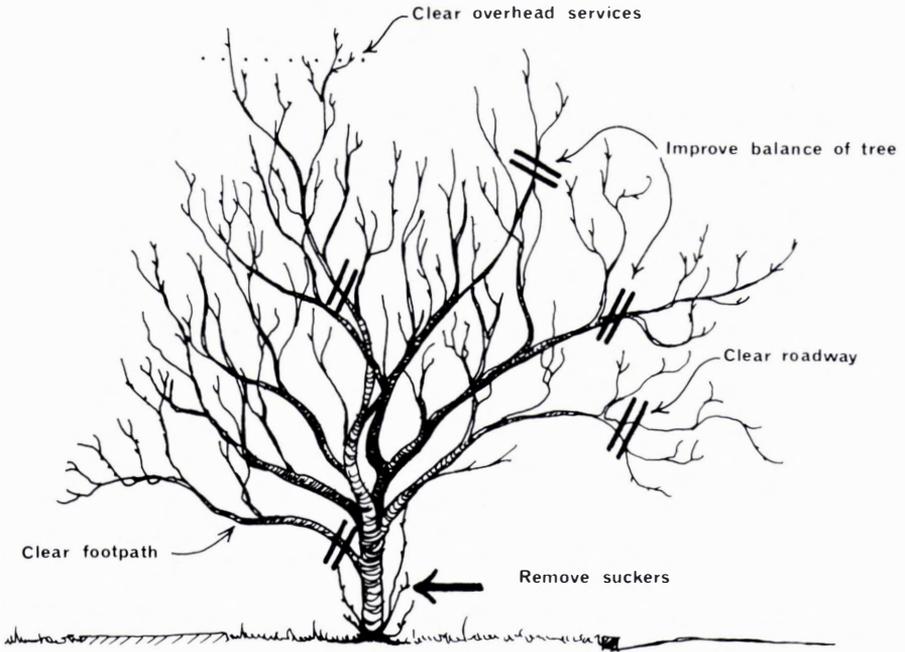
- general restriction of growth.
- general renovation and rejuvenation.

Method :

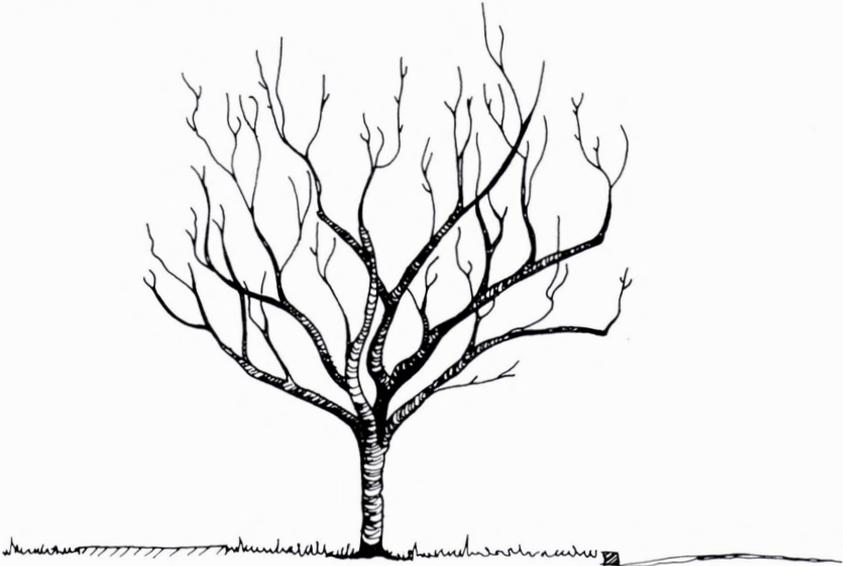
in order of sequence.

1. Remove suckers - sucker growths that appear below the budding or grafting point should be pulled off when small and the wound pared with a sharp knife rather than cut because dormant buds may be present around the wound. Remove water shoots or epicormic shoots - clusters of strong shoots that arise from dormant or adventitious buds on the trunks or major branches - remove by cutting with secateurs or loppers as close to the bark as possible. If left they contribute to weakening of branches higher up in the crown of the tree by using up part of the food supply.
2. Remove dead and diseased wood - cut back into live healthy wood with appropriate tools.
3. Any large branch that upsets the balance and any obviously awkwardly placed or crossing branches should be removed to leave the remaining framework branches as evenly spaced as possible. After cutting any major branch stand back and view the tree.
4. Raise canopy by cutting off unwanted material back as close as possible to the major branch. Raise so that the average person can walk underneath without getting one in the eye.
5. Balance older wood with production of young shoots. Remove older than 3-4 years if not contributing to major structure. If in a very bad state this should be done over a couple of years.
6. Remove excessive fruiting wood without great ill effect to the seasons flowering - consider remaining material of 1-3 seasons and thin to complete a healthy internal structure capable of reasonable flowering next season.
7. Prune the tops out of wires by removing material. In preceding operations, a lot of the branches in the wires will have been taken out, cut the remainder with a polesaw or lopper on the extension pruner. A Hiab may be necessary in extreme cases.
8. Restriction of growth - complete outside shaping of tree so it is aesthetically pleasing - use extension pruner or cut by climbing in the tree with outside direction.
9. Finally pare all cuts over 20mm with a sharp knife (trim the edges neatly to speed callousing) and treat with 'Prowax' or 'Prunect'.
10. Remember chainsaw safety and method of large branch removal.

Pruning Ornamental Apricots



BEFORE . . .



AFTER . . .

CONVENTIONS IN WRITING PLANT NAMES

from a Lincoln College student handout

NOMENCLATURE

Certain conventions are followed when writing plant names. These are briefly outlined below.

1. Botanical names

The binomial - this consists of two parts; firstly the generic name and secondly the specific name.

Always write the generic name with an initial capital letter, the specific name is written with an initial small letter. Both names are always underlined (or typed in italic type in the printed text).

eg: Brachyglottis repanda var. rangiora

Brachyglottis repanda var. *rangiora*

2. a) Abbreviations of categories

species = sp. (singular) spp. (plural)

subspecies = ssp.

variety (varietas) = var. or v.

form (forma) = f.

The above abbreviations are always written in small letters as indicated and are never underlined or set in italic type.

b) Abbreviation of generic names

Provided the content makes it unambiguous, generic names may be abbreviated where several species belonging to the same genus are quoted. The generic name in the first instance is written fully and from then on in the list can be abbreviated to the initial capital letter followed by a full stop.

eg: Quercus robur

Q. borealis

3. Cultivar names

Are written with an initial capital letter and enclosed by single quotation marks and can be preceded by the abbreviation cv. Cultivar names are never underlined nor set in italic type.

eg: Juniperus communis cv. 'Compressa'

What is it - cultivar or variety?

Horticulturists have long used the word 'variety' for the great number of variants which occur in cultivated plants such as Populus nigra 'Italica' (the Lombardy Poplar), or Syringa vulgaris 'Mont Blanc' (a white lilac). These are cultivars and not varieties. The International Code states that the term 'variety' should be confined to populations of plants which occur in the wild and are distinctly different from the true species. An example is Sophora microphylla var. fulvida which is an attractive little kowhai with very large flowers from the west coast near Auckland. Other examples are Brassica oleracea (the wild cabbage), Brassica oleracea var. gemmifera (Brussels sprouts) or Brassica oleracea var. capitata 'Golden Acre' (commonly known as Golden Acre Cabbage). True varieties are consequently much restricted in nomenclature and the term cultivar now correctly replaces the word variety in most instances.

A cultivar, therefore, is a plant which has originated in cultivation or has been maintained in cultivation, and it is not usually given a name in Latin form. Cultivated plants, whether they are vegetatively propagated or are pure lines or strains are all designated as cultivars.

More technically a cultivar may be defined as an assemblage of cultivated individuals distinguished by morphological (external shape), cytological (cellular), or other characters significant for the purpose of horticulture. When they are sexually or asexually vegetatively reproduced, they retain their distinguishing features.

Variety or subspecies?

The subspecies is the principal subcategory below species level and is used in contemporary schemes of classification when a species includes individuals that show minor but consistent morphological differences associated with distinct geographical or ecological distribution. The category variety is most often used today to designate variants that are not associated with distribution, but in some botanical works it is used as an equivalent to subspecies depending upon the author, or the state of knowledge of the species or both.

Clone

A clone is a group consisting of individual plants which have been propagated vegetatively from a single plant and are therefore genetically uniform. Examples: all roses

which are budded , all fuchsias which are propagated by cuttings, all camellias which are grown from cuttings or budded or grafted. They are all clones with a cultivar name.

Strains

An example is the strain of Russell Lupin, which is a group of hybrids of unknown origin raised from seed and showing stable characters. If a group of seedlings of Russell Lupin has a unique flower colour and did not have to be propagated by cuttings or division in order to retain that particular characteristic, then this is known as a form and written botanically with the word forma or f. proceeding it. If that unique flower had to be propagated vegetatively to be retained then it would be given a cultivar name.

Kind or Kinds

This term has no botanical status. When used in Show Schedules it is an acceptable word for the Society and it appears to be clearly understood by exhibitors and judges. (It is defined in the C.H.S. Schedule as a term which may be used in the classification of pot plants, trees, shrubs, flowers, fruit, and vegetables for exhibition purposes. Eg: chrysanthemums, delphiniums, roses, are "kinds" of flowers; apples, peaches, plums, grapes, are "kinds" of fruit).



It is important to label all identified species-sign on potting shed, Otari Native Plant Museum, Wellington.

4. Names of families and higher groups

Names of plant families and of higher groups in the Plant Kingdom are written with an initial capital letter and are not italicized or underlined.

eg: Rosaceae - family, Rosales - order.

5. Citation of Authors name

Inclusion of the authors' names is usual in floras and some technical publications, since it makes for accuracy and clarity, but it is not necessary or expected in semi-technical or popular publications. Botanical names can be followed by one or several personal names (in full or abbreviated).

eg: Carex divulsa Stokes

Conium maculatum L.

Citation of authorities avoids confusion in instances of duplicated names (ie: when the same latin name has been applied by several botanists to different plants at different times), and it gives the name of the person who first described the particular plant.

When the first personal name is in parentheses, it refers to the person who first used the particular specific or subspecific name. With increasing knowledge of plant relationships, a later author decides that the plant would be more correctly placed within another genus or species, and he formally publishes the change; the second author's name is subsequently cited following the original author. For example, the well known shepherd's purse was first described by Linnaeus in 1753 as Thlaspi bursa-pastoris; it was later transferred to Capsella by Medicus in 1792, the correct citation then becoming Capsella bursa-pastoris (L.) Medic.

6. Common or vernacular names

a) Common names in lists and text

Common names used in descriptive text should be written in small letters, except when part of the name is a proper noun or adjective, in which case an initial capital letter is necessary, eg: balm of Gilead, Canadian pondweed, Cape tulip, hemlock, Malta thistle, parsley piert, ragwort.

b) Botanical names used as common names

In technical texts, it is common for the botanical name to precede the common name, while in non-technical or popular texts, the common name usually precedes the botanical name; whichever practice is adopted is a matter of individual preference.

When a common name follows a botanical name it is commonly enclosed in a parentheses, a like procedure being adopted when a botanical name follows a common name, eg: Daucus carota (wild carrot), wild carrot (Daucus carota). A less frequently used alternative is to separate the two names by a comma, eg: Daucus carota, wild carrot, or alternatively, wild carrot, Daucus carota.

7. Hybrids

a) Interspecific hybrids

Hybrids between two species within one genera are written with a cross to indicate this, eg: Viburnum x burkwoodii, both names are underlined (or italicized in the printed text). Parents Viburnum carlesii and V. utile.

In speaking, the x indicating a hybrid genus or hybrid species is never pronounced like the letter x, it is spoken as 'cross'.

b) Intergeneric hybrids

Hybrids between two different genera are preceded by an x, eg: the hybrid between Fatsia japonica cv. 'Moseri' x Hedera helix var. hibernica is written x Fatshedera lizei. (The name Fatshedera being made up from the two genera involved in the cross, Fatsia and Hedera.)

Another well known example of this is x Cupressocyparis leylandii.

c) Graft hybrids

Graft hybrids follow the same conventions as those used for normal hybrids except that the multiplication sign (x) is replaced by a plus sign (+). eg: as in the graft hybrid genus + Laburnocytisus adamii (Cytisus purpureus grafted into Laburnum anagyroides).

d) Cultivars of unknown origin

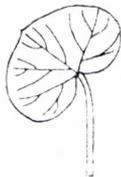
In some instances when cultivars are of hybrid or unknown origin they may be assigned directly to a genus.

eg: Begonia 'Rodgeri'

Ilex 'Maplehurst'



Lanceolate



Reniform



Ob'long



Oblanceolate

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