

Horticulture

in New Zealand

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



26

Summer 1982-83



HORTICULTURE

IN NEW ZEALAND

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Cover photo : *Meconopsis baylii*

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC)

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<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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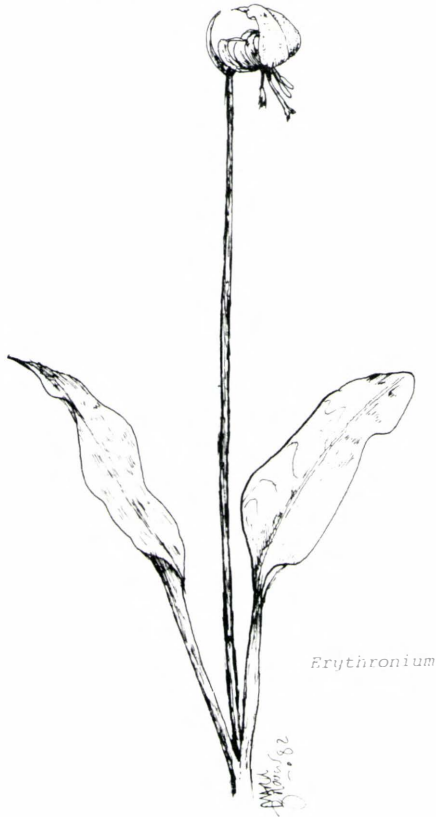
EDITORIAL

Well, today summer has decided to return to Christchurch after being in what seemed like the depths of winter only last week. As I sit writing, with one of Canterbury's hot nor-west winds blowing outside, I think of the commercial and home gardeners who have been hit by hail storms this season. It shows that in this game of horticulture the elements still have the last word, no matter how good we think we are.

I would like to thank all those who returned their questionnaires with ideas for the Institute and the Bulletin. A total of 60 have been returned and I will be searching out articles on some of the subjects mentioned for future Bulletins.

I hope you find the articles in this issue as interesting as I have. The grape harvest in Australia and the history of the kiwi-fruit in the District News, I found most informative and they show us opportunities that are open to us.

It only leaves me to wish you all the very best for 1983, and every success in your field of horticulture.



Erythronium

- David Shillito
Editor

DISTRICT COUNCIL NEWS

AUCKLAND

Once again we record our appreciation to members and friends who willingly gave up leisure time to contribute to classes for students. Our thanks to Cornwall Park Trustees and Regional Authority Parks Department for use of their nursery facilities to conduct classes, and our special thanks to Miss Joan Dingley for her lectures on plant diseases, Mr. Roy Furnell for his surveying talk and demonstration, Mr. Barry Soljan together with Mr. Kevin Hood for their morning into afternoon class on grafting and budding.

At our September meeting, Dr. Ross Fergusson of the Division of Horticulture and Processing, D.S.I.R., Mt. Albert, spoke on the history of the kiwifruit. Eighty years ago the kiwifruit was a wild plant in China or just a very handsome climbing plant, one of the many interesting new Chinese plants being brought into cultivation. Today the kiwifruit has become a horticultural success story. In New Zealand orchards now cover 8,000 hectares and fruit production is increasing rapidly. On current returns export earnings could approach \$800 million by 1990.

All commercial plantings of kiwifruit throughout the world can be traced to New Zealand and all plantings in New Zealand can be traced back to a few plants growing in Wanganui at the beginning of the century. These plants were grown from seed brought into New Zealand by Miss M.I. Fraser, the headmistress of Wanganui Girls' College. Miss Fraser went to China in 1903 to visit her sister, a missionary teacher at Ichang, a small treaty port on the Yangtze River and about 1000m inland.

Ross spoke of some of the people involved in the kiwifruit story. Dr. Augustine Henry, E.H. Wilson (the plant collector) Alexander Allison (who first produced fruit in N.Z.), Fred Walker of Wanganui, Hayward Wright, Bruno Just and one of our own Institute members, Dr. Harold Mouat.

Almost every step in its domestication can be traced and we were able to follow the kiwifruit from its origin in China to its dispersal throughout the world as an important horticultural crop.

CANTERBURY

September - A field trip was held to the Orton Bradley Estate in Charteris Bay where members were treated to a conducted tour of the old farm buildings and surrounding grounds by Mr. H.G. Gilpin. Afterwards the fitter members walked over the hills to see the new plantings, notably the Kauris.

October - Mr. Bill Sykes of the Botany Division, D.S.I.R. led a group of mainly N.D.H. students around Victoria Park and was able to enthuse people about the many species of plants growing there. Mr. Sykes pointed out how the plants suffered from draught, fire, vandalism, wind and browsing animals, but was able to show how more nature plantings had formed sources of true and viable seed.

On October 30th, 50 people travelled to Hororata to view Derek Rooney's garden. Mr. Rooney spoke of the difficulties he had growing certain plants, compared with other parts of Canterbury. The garden, although of a casual nature, was full of interest with many plants on display, the result of good propagation, plant exchange and many hours of dedicated work.

November - A film, wine & cheese evening was held in the garden club room in the Horticultural Hall. Those who attended enjoyed themselves because the films were of a high standard and the plant sales table was full of interesting specimens which were auctioned off.

NORTH TARANAKI

There has been much activity in the area since we last appeared in these pages. Membership continues to increase although, as with other districts, we would welcome some of the younger age group whose longer life expectation would ensure the continuation of the main object of the Institute, which is to promote horticulture in all its aspects throughout the country.

With sincere regret we record the passing during the year of two members, Mrs. Win Henery and Mr. Fred Parker, both having done so much for horticulture in this area.

ANNIE RUMBAL BEQUEST Three applications have been received for this bursary which is limited to students who live in the Stratford-Inglewood area. We wish them well in their studies.

The evening meetings have been well attended and the sales tables have had good support.

In June we were treated to an interesting talk with slides on a "World Garden Tour" by Mr. Graham Smith, Curator of "Pukeiti". At this meeting we congratulated students Christiansen and Shelton on gaining Certificates in Horticulture.

Mrs. R. Willis entertained us in July with a demonstration of Floral Art which included some newer cut flower varieties.

At the August meeting Mr. Ken Davies gave a very practical demonstration of "The Propagation of Indoor Plants and the Lay-out of Small Sections".

Mr. Gerry Paulin was the speaker at the September meeting and he brought along a variety of proteas and leucadendrons etc. and demonstrated their propagation and culture, emphasising how important it is to remember that all members of this group of plants thrive better in the poorer soils.

The October meeting was addressed by Mr. Ross Heveltdt, Export Manager of N.Z. Nurseries, who told us of the international plant health requirements of exporting and importing plants as applied to N.Z. His talk included slides covering a trip under a Churchill Scholarship to Hawaii, California, Holland and Guernsey Island.

For the final meeting in November, the ladies arranged a most successful pot luck tea, the result being the equivalent of a very high class smorgasbord.

The next evening meeting will be our Annual General Meeting on Saturday 12th February 1983.

The day trips to interesting local gardens continue to be popular - so much so that two buses are now required.

On 14th October we went further afield to Stratford and Ngaere. At Cardiff, Mrs. Raynor had invited us to spend some time looking around her five acres planted mainly in camellias and rhododendrons at various stages of flowering. Not many years ago the area was cow paddock.

Urenui was the centre of the day trip in November and a local trip is being arranged to commence the year in January.

SOUTH TARANAKI

Notice of a number of Notable and Historic Trees in the district has been received by our Tree Registration Officer, Mr. Foster, which is most encouraging.

The last circuit meeting was held at Makaka and went off very well in spite of freezing weather! There was a good attendance to hear Mr. Foster speak about "The Art of Propagation" and Mr. T. Smith of Waitara entertained with his programme of Talking Films which took us over the Milford Track, the Holyford Track and the Routeburn Walk. With music and bird calls this was indeed 'A programme with a Difference'.

WELLINGTON

The October meeting opened with a presentation to Mrs. A.M. Leydon of the Junior Memorial Prize by Mr. I.D. Galloway.

Mrs. Diane Menzies then introduced the speakers, Ms. Victoria Froude of Management Resources for the Wellington Regional Council and Mr. Boyden Evans, Landscape Architect for the Queen Elizabeth II Trust. They spoke on the Wellington Regional Landscape Study which looks at the biology of the region, with special emphasis on endangered species; the visual impact of the countryside, its protection and enhancement and the cultural use of the land.

This type of information is vital, not only for regional planning and the Council's own land management functions, but it is also needed for other agencies. The Q.E.II National Trust (which has national responsibilities for landscape conservation) and the DSIR's Biological Resource Centre (which is attempting to improve the flow of biological information into the planning process), have joined with the Regional Council to set up this landscape planning study for the Wellington region. Ms. Froude and Mr. Evans detailed the area covered in the planning study and with slides showed the diversity of the landform, habitats and vegetation within the region. Their job is to collate all available information published and unpublished on the biological resources of the Wellington Region and plot them on a Biological Resources map for future reference.

WHANGAREI

Our speaker at the August meeting was Mr. Hanley Hutchinson, N.D.H. (Fruit), Chairman, District Council. With the aid of charts, he spoke on all aspects of fruit growing, stressing the importance of shelter and protection to start with. Although basically methods have remained the same for hundreds of years, there are many modern innovations, with scientific research helping greatly. Today the orchard must be kept free of pathogens and insect pests which are ever on the increase. The orchardist must strive all the time to achieve perfection in his marketed fruit.

The display table at our meetings is always a feature of great importance, combining as it does, beauty and interest. At the August table Mr. Blumhardt had a breathtaking display of *Magnolias*, several of them his own hybrids :

Magnolia denudata x *M. stellata* 'Pristine'
M. cylindrica (species)
M. 'Lanarth'
M. 'Caerhays'
M. liliflora veitchii 'Royal Crown'
M. liliflora x *campbellii*
M. denudata x *M. veitchii*
M. 'Dawn'
M. 'Norbettii'
M. 'Lennei Alba'
M. 'Alexandrina'
M. campbellii pink, white & 'Charles Rafill'
M. liliflora
Hybrids 'Star Wars', 'Early Rose', 'Moon Rockets'
M. 'Amabilis'

The speaker for October was Mr. Syd Wrey, President of Whangarei Orchid Conference in Brisbane. He gave us, not a talk on Orchid culture, but a fascinating story of modern trends in Orchid research and hybridising, with emphasis on temperature needs of different species e.g. heat tolerance in some, cold tolerance in others and breeding designed to overlap the range of tolerance. He illustrated his talk with interesting and beautiful slides.

LODER CUP AWARD 1982

Mr. Arthur Ericson, of Akaroa, has been awarded the Loder Cup for 1982. Mr. Ericson grew native plants while farming in Southland and has maintained his interest during his retirement in Akaroa. He has been honorary ranger for Banks Peninsula for the Department of Lands and Survey since 1967.

He has been largely responsible for the development of the Akaroa Recreation Reserve, known as the "Garden of Tane".

The reserve has been restored and in a systematic programme, more than 200 species of native plants have been established and recorded in a "History of Planting" written by Mr. Ericson.

The reserve is used extensively by school groups, residents and visitors to Akaroa.

NOTES FROM NATIONAL EXECUTIVE

Deputy Chairman Appointed

For the ensuing year, Mr. R.J. Nanson has been appointed Deputy Chairman of the National Executive. Mr. Nanson is a well known horticultural personality, particularly in the Wellington area and is Deputy Director of Parks & Recreation, Wellington City Council.

Horticultural Education in Secondary Schools

The Institute submitted to the Director General, Education Department, a statement requesting better recognition of holders of the N.D.H. for teaching purposes in secondary schools. The reply was very favourable and the N.D.H. will be included in the review of salary scales in due course.

Conference Remits (From Northern District Councils)

(No.2) Whenever practical a National Executive Committee Meeting will be held during the Annual Conference.

(No.3) It was confirmed that Mr. I.D. Galloway and/or Mr. R.J. Nanson would represent the interests of the Institute on the Beautiful New Zealand Co-ordinating Committee.

(No.4) Approval was given to this remit which sought confirmation that District Councils could approach news media on a local basis when appropriate on district matters.

Flowers for Shows Handbook

Under the chairmanship of Mr. M. Steven, progress is being made towards the revision of the "Flowers for Shows" handbook. Mr. E. Toleman is undertaking the gathering of the information and editing. Underwriting the printing costs is concerning the National Executive and advance pre-paid orders will be sought.

NATIONAL EXECUTIVE - ORGANISATIONAL STRUCTURE

Following discussion of proposals put forward by the Chairman, the following Sub-Committees have been set up to deal with matters of particular importance to the Institute. The Policy and Finance and Public Relations Sub-Committees are new, while the other Sub-Committees are on-going with some having changed emphasis.

Policy and Finance To act in matters of urgency regarding policy and finance, this Committee is to meet whenever necessary and to report accordingly to the National Executive Chairman, Mr. J.O. Taylor. (The formation of this Sub-Committee was also the subject of a remit to conference from the Northern District Councils.

Public Relations To investigate and report on the development of an awareness nationally of the R.N.Z.I.H. Convenor is Mrs. M. De Castro of Blenheim and the committee members are Mr. R.J. Ballinger, Mr. A.J. Jolliffe and the Secretary Mr. R.A. Foubister.

Awards To consider all Awards such as Associates of Honour, Fellowships, Hon. Life Membership, Plant Raisers. Convenor, Mr. I.D. Galloway.

Nomenclature To continue the responsibilities of the Institute as the International Registration Authority for the Genera Hebe and Leptospermum. Convenor, Mr. L.J. Metcalf.

Publications To be concerned with the Bulletin and Annual Journal. Convenor, Mr. J.O. Taylor.

Notable and Historic Trees Included in this committee's work are environmental matters and the Judges Register. Convenor, Mrs. W. Shepherd.

Plant Evaluation Convenor, Mr. R.J. Nanson.

The Regional Horticulture Sub-Committee as such has been disbanded and the work redistributed among other Committees.

The work of all Sub-Committees will now be to act on their particular areas of responsibility and report to the National Executive accordingly. Members of the Institute and District Councils should direct all enquiries and matters which they wish to raise with the Executive, directly to the National Secretary.

AWARD OF FELLOWSHIP

At the National Executive Meeting in September, Mr. Aubrey E.J. Smith was elected a Fellow of the Institute in recognition of his long and valuable contribution to horticulture, particularly in the Auckland area.

NOTABLE & HISTORIC TREES

A brochure publicising the Notable & Historic Trees Scheme has been printed. This is a joint brochure between the R.N.Z.I.H. and the Historic Places Trust, with 5,000 brochures each for both organisations.

Membership of Historic Places Trust is over 11,000 so at present all these members will not be able to receive a brochure.

Many thanks to all concerned - voluntary job, in voluntary time from people already overworked. The Environmental Conservation Organisation (E.C.O.) saw the brochure at the printers and asked for 25 copies. These have been sent.

Distribution plans for our brochure numbers are being formulated and we hope to start distribution shortly.

Mr. Reece and Mr. Flook of the committee have volunteered to work through Mr. Burstall's lists, finding out how many trees are still in existence. They undertook this job as support for the scheme generally is still slow in coming in and they felt the committee now needed to try and do a lot more themselves.

Applications for tree registration still come in on a regular basis and a better spread of registered trees over the whole country is slowly being built up.

The committee needs to be enlarged and any suggestions for possible members would be welcome. Mr. David Rowe has indicated his intention to resign as Secretary but wishes to stay on the committee. His resignation is to take effect from the end of the year.

- Winsome Shepherd
CHAIRMAN

OBITUARY

MR. FREDERICK LEO PARKER

Mr. Fred Parker, an Associate of Honour, died recently in New Plymouth. He was 90.

Mr. Parker was the last surviving former member of the original Pukekura Park Committee. He was also known for his work for the Pukeiti Rhododendron Trust, and his laying out and tending of the grounds of the West End and Devon Intermediate Schools.

Mr. Parker learned a great deal about horticulture from the owner of the Ngaere Gardens, but his career was that of a builder and at that time horticulture was only a hobby.

For many years he was best known for Parkers Gardens "No.1" which were visited by thousands of people, many from overseas, and which raised hundreds of pounds for charitable and horticultural purposes.

Mr. Parker served on the Pukekura Park Committee for more than 40 years and was also elected a life member. He was awarded the M.B.E. for his work for schools and made an Associate of Honour by the Institute in 1968.

MR. JOE SHORT

It is with deep regret that we note the passing of Joe Short. He was until recently, a member of the Wellington District Council for many years and held the offices of Treasurer and Vice Chairman during that time. He served on the special committee that drafted the first edition of "Flowers for Shows" in 1966 and was responsible for revising the second edition in 1968. He only recently retired from being the Curator at Victoria University. He will be sadly missed by his many friends in the Institute.

MILDURA: THE GRAPE HARVEST

by Mike Gelling

Mildura, the heart of the 'Sunraysia District' in the north west of Victoria and separated by the Murray river from New South Wales, is not only a tourist haven for river trips, fishing and water skiing, but is also an important region for its vineyards, citrus fruits and the dried fruit industry.

In early February, Mildura prepares for the influx of approximately 5,000 'seasonal workers'. From overseas and every state in Australia they gather, from all walks of life. However some of the 'undesirable element' (so called by a section of Mildura's business community) will not see the season through, mainly because of disillusionment.

The dried fruit harvest commences about the first week in February with currants maturing first, followed approximately two weeks later by sultanas. The sultana harvest begins on a more or less fixed date near mid February.

VARIETIES The main varieties of grapes grown for drying are sultana, (Sultanina, Thompson seedless), Gordo and Waltham Cross (both are used as dried fruit for raisins).

The growing of clonal sultanas, which are more vigorous and higher yielding, is increasing with recent research.

CLIMATE The Sunraysia area is ideally suited for the growing and drying of grapes with high effective heat temperatures above 10°C during the September to March growing season; a low spring frost incidence; low spring rainfall; a hot rainless summer.

METHODS OF HARVESTING Harvesting is labour intensive. Grapes are hand picked into containers ('dip tins' or 'buckets') measuring around 36cm x 25cm x 18 cm. The dip tins have perforated bottoms and sides to allow free flow of oil emulsion through fruit during dipping.

Mechanical harvesting of grapes for drying purposes is still in the experimental stage, although fully developed for the harvesting of wine grapes.

Another technique of which only a small number of growers make use, is that called trellis drying. Canes are harvest pruned leaving the following years replacement canes intact. Fruit is heavily sprayed with oil emulsion and left to dry (10-15 days). Harvesting consists of shaking the trellis mechanically and catching the dried fruit as it falls.

DRYING RACKS Drying racks, constructed 46-90m long, consist of 8-12 tiers, spaced 23cm apart vertically, which are made of galvanised wire netting 120cm wide. At 3m intervals along the racks, pairs of intermediate uprights or posts 2.4 - 3.0m high and 15m apart carry cross pieces that support the tiers of netting.

Most of the drying takes place in the shade and is effected largely by the natural movement of hot, dry air through the rack. Therefore racks are spaced well apart (9-12m) and well clear of

obstruction. The area surrounding the racks (drying ground) has grass cover e.g. couch grass to reduce wind blown grit contaminating the fruit.

Fruit is emptied directly onto the racks from the buckets or dip tins starting with the bottom tier and working upwards after each tier is full. Fruit is spread out evenly about one bunch thick and any leaves are removed.

DRYING (theory of drying) The grape berry is very resistant to water loss. The cuticle, in particular the outer waxy layer, limits the drying rate of the grape berry.

During drying, water moves outwards through the cells of the flesh and skin and into the air surrounding the berries. This air becomes very humid and its removal is essential for rapid drying. Naturally ideal drying conditions are provided by a light wind on a hot dry day, when heat is supplied rapidly to the berries and moist air around them is continually removed.

(Drying of sultanas) Pre-drying treatments that hasten drying are used in Australia. Sultanas are dipped in or sprayed with an alkaline oil in water emulsion (cold dip).

Drying times are reduced from 4-5 weeks for untreated sultanas to 8-14 days for treated sultanas dried under average conditions. Such fast drying leads to a rapid rise in sugar concentration which inhibits the action of the enzyme responsible for darkening in untreated fruit. The natural golden yellow colour of sultanas is therefore preserved in treated grapes dried under good conditions. However, when rain or high humidity interrupts fast drying, darker fruit is produced.

The emulsion is applied to the berry surface in various ways, but the aim is to completely wet the fruit. The two methods used by growers are :

Bulk dipping Frames holding 75-100 perforated dip tins of fruit are totally immersed in a large tank of oil emulsion prior to being spread on the racks. pH is 11 for a freshly made mixture and if it drops below 9.5 the dip is likely to ferment and so caustic potash is added to raise the pH above 10.

Rack spraying After sultanas are spread on the racks they are sprayed with emulsion using a specially designed multiple-nozzle forked wand. Spraying usually being carried out at the end of each day.

It is particularly important when rack spraying, that the fruit is spread evenly and all leaves removed so that total wetting of the berry surface is possible.

A further spraying is followed 4 days after the first. If the emulsion is washed off by rain, the fruit is re-sprayed as soon as the weather improves.

REMOVAL OF DRIED FRUIT FROM THE RACK Readiness for shaking is indicated by the ease with which a small quantity of fruit compressed in the hand resumes its original friable condition, by the brittleness of the bunch and capstems. Fruit shaken before this stage is liable to be badly damaged.

The rack to be shaken is prepared by running out hessian on each side of the rack to catch spillages. Hessian is also laid between bays crosswise at ground level to catch the fruit.

The mechanical rack shaker is mounted on the 3 point linkage of a tractor and driven by the power take off and is fitted with a catching tray. The rack shaker is reversed into the rack and has the same number of fingers as that of tiers in the rack. The fingers move in a vertical direction and thereby shake the fruit from the cap stems and onto the catching tray.

Under normal conditions shaking is carried out during the cooler parts of the day i.e. mid morning and late afternoon.

After shaking the fruit is spread out on sisalkraft sheets (46x1.8m) in the sun and is spread evenly by raking. 2-3 days of good weather are sufficient to dry the fruit down to the maximum moisture level acceptance (13.5%)

In case of rain or heavy dews, fruit on the ground is protected by folding over the sheets and pinning to prevent unfolding. Sheets are in some cases kept folded prior to boxing to facilitate further drying of the fruit.

Fruit is boxed in wooden containers and the fruit delivered to private or co-operative packing companies, where it is graded and the quality of the fruit is assessed.

Processing of dried fruit involves the separation of the good fruit from stems, cap stems, poor fruit, grit and other foreign matter. After washing and cleaning, paraffin oil or a stabilised vegetable oil is sprayed onto the fruit as a dressing, to impart an attractive gloss.

Raisins require further processing to remove the seeds prior to being packed.

EMPLOYMENT PROSPECTS for the seasonal worker arriving in Mildura during the first week of February or earlier prospects of employment are good as the majority of the 2,000 'blockies' require labour for the 3-5 weeks (depending on weather conditions and the quantity of grapes to be picked). Some 'blockies' have accommodation available for pickers on their properties, while caravan parks in and around Mildura have ample accommodation also.

Employment can be gained through the Commonwealth Employment Service (C.E.S.) office in Mildura or via the local media.

Apart from the vinegar flies, 3 cornered jacks (vicious spikes borne with a very innocent yellow flower) and the odd frill-neck lizard, the experience to be gained will prove invaluable and most rewarding.

*ACKNOWLEDGEMENT: Grape Drying in Australia Dried Fruits Processing Committee.
Frank Di Mura, Trymple, Victoria, Australia*

PLANT RAISERS' AWARD

Members are reminded that nominations can be made through their District Councils for the above Award. These nominations must be made in writing to the Secretary, R.N.Z.I.H., not later than 30 June each year.

The Award is granted to any nominated individual or organisation who has raised in New Zealand a cultivar considered to be sufficiently meritorious. The Award shall consist of an inscribed medal.

The conditions for making this Award are as follows :

- (a) The cultivar shall have been raised within New Zealand. The raiser may be either an individual or an organisation.
- (b) The cultivar shall have been in cultivation for a period of at least three years prior to the raiser's name being submitted for consideration. The cultivar is to be sufficiently fixed so as to be suitable for further propagation. The Award shall be granted only for a cultivar considered to be an outstanding development, improvement or selection of an existing type, or an entirely new plant of merit.
- (c) Sufficient evidence of the bona fides of the raiser, and full information of the cultivar raised, shall be submitted to the committee.
- (d) In the event of the Committee requiring further evidence specimens of the cultivar shall be submitted to the Committee for consideration by at least three competent judges appointed by the Committee for this purpose.
- (e) The Award shall be granted solely to those persons or organisations who have bred the cultivar from seed. The Award shall not be granted to introducers of plant from the wild, or of bud sports vegetatively produced in the first instance.
- (f) The raiser shall be nominated to the Committee by one of the following Horticultural Organisations :
 - Any District Council of the R.N.Z.I.H.
 - Any Horticultural Organisation or branch thereof affiliated to the R.N.Z.I.H.
 - Any Incorporated Horticultural Organisation.

new members

Unfortunately space in this issue does not permit the publication of our new members enrolled since the last issue. Names will be listed in Bulletin 27.

STUDENT SECTION



DRALOPHYLLUM
MENZIESII

Merv Spurway
14-12-82

EDITORIAL

Summer, the season of sun, surf and sprinklers is here again. I am impressed at the wide range of irrigation equipment now available from garden centres. Automation has hit the home gardener. Nozzles, valves, timers and sensors are all available at reasonable prices. Instant, accurate irrigation, no more hours on the end of a hose; something previously restricted to commercial growers.

Examination results will be sent soon and hopefully all your efforts are suitably rewarded. Any comments about exam papers are most welcome as it is desirable to have some constructive feed-back from students.

Welcome to all new members. Remember the events organised by your District Council during 1983. Please participate.

Happy New Year.

- Merv Spurway

PLANT SELECTORS' RIGHTS

*(Based on 'Guide to Plant Selectors' Rights' issued by
the Plant Varieties Office, Ministry of Agriculture and Fisheries)*

The protection given to the breeder of a new plant variety by a grant of Plant Selectors' Rights is similar to that given to an inventor by a Patent grant.

INTRODUCTION

A grant of Plant Selectors' Rights for a new variety gives the holder the exclusive right to produce for the purposes of commercial marketing, to offer for sale, or to market reproductive or vegetative propagating material of the variety. He may license others to do these things. The holder of the grant is entitled to charge a royalty on all sales of the plant material. He is free to assign, mortgage or otherwise dispose of the grant. A grant of Plant Selectors' Rights issued by the N.Z. Plant Varieties Office is exercisable only in New Zealand. Only the owner of a new variety is entitled to a grant of Rights. The owner will be the breeder or discoverer of the variety, his employer, or his successor-in-title. The application may however be made by an agent on behalf of the owner of the variety.

REQUIREMENTS

Enquiries regarding which genera or species Plant Selectors' Rights protection is available for and fees payable should be made to the Plant Varieties Office. Certain criteria are used to determine eligibility for Rights.

A grant of Rights may be made for a variety if :

- (a) The proposed denomination (name) is acceptable.
- (b) It has not been sold for more than a stipulated period.
- (c) The variety differs from all known varieties in one or in some combination of the following ways - morphological, physiological or other characteristics (e.g. milling characteristics of a new wheat).
- (d) It is uniform.
- (e) It remains true to its description after repeated reproduction or propagation.

If a plant variety has been independently bred or discovered by two or more persons, only the first person to make a valid application for a grant should be entitled to the grant. When applying for Plant Selectors' Rights one may also apply for a Protective Direction. If granted, a Protective Direction gives an applicant interim protection of his variety while the application for Rights is under consideration.

Publication of details of applications and grants is made in the New Zealand Plant Varieties Journal which is issued quarterly by the Plant Varieties Office.

TERM OF GRANT

Plant Selectors' Rights are granted for a term beginning with the date on which the grant of Rights for the variety concerned takes effect and ending at the expiration of the period prescribed for that variety. Unless otherwise stated in the grant, the term of a grant in respect of any fruit trees, vines, forest or ornamental trees, including in each case their rootstocks, is 18 years. For every other species, the term is 15 years. Plant Selectors' Rights remain in force so long as the holder of the Rights, or a person acting on his behalf, pays a renewal fee each year during the term of the Rights.

Application forms for Rights are available from :

The Registrar,
Plant Varieties Office,
P.O. Box 24,
LINCOLN

NOTES FROM THE EXAMINING BOARD

N.D.H. SYLLABUS REVISION

The Examining Board has set in motion a revision of the four Schedules of the N.D.H. The reason for the revision is the need to keep up with change which is occurring in all spheres of horticulture. The revision will take some time because proposed amendments will be sent to all appropriate professional horticultural organisations for their comments and assistance.

EXAMINATION STATISTICS

Four hundred and fourteen candidates entered for the written examinations in 1982 as follows :

N.D.H.	First Schedule	(General)	232
"	Second	" (Fruit)	47
"	Third	" (Vegetable)	17
"	Fourth	" (Nursery)	98
Horticultural Sales Certificate			17
Number of written subject entries			1180
Number of Oral & Practical entries			150
Number of examination centres			31

EXAMINATION RESULTS

Because of the logistics involved in sending examination scripts to the large number of examiners and receiving the results back by the due date, the Examining Board is not meeting until 27th January. Candidates will be notified of the results immediately after this date.

AMENITY GRASSES

(from Grasslands Division D.S.I.R. Research Report 1982)

Until recently the seed of perennial ryegrass used for New Zealand sportsfields, and of browntop or chewings fescue used for our lawns, was of the same type as used for our pastures. In 1973, it was decided to breed some New Zealand cultivars specifically for this amenity role.

To date, five cultivars from this programme have been approved for release and are being seed-multiplied for commercial release. They are :

(1) Coronet perennial ryegrass: Much more dwarfed and densely-tillered than the pasture cultivars and also a darker colour. Suitable for sites of heavy wear such as winter sportsfields.

(2) Cook chewings fescue: Shorter leaves, brighter green and more densely tillered than the current New Zealand commercial lines. Suitable for lawns, especially where dry or shady.

(3) Tasman creeping fescue: Less dense and compact than Cook fescue, and has a more vigorous rhizomatous spread. Will be useful for lawns but its creeping nature may give it extra value on surfaces that are eroded or subject to wear.

All three cultivars were bred from plants collected locally, from New Zealand commercial populations, and from overseas cultivars.

(4) Egmont browntop: Darker, denser and finer than the current N.Z. commercial lines.

(5) Sefton browntop: Denser, more vigorous and finer even than Egmont, and a brighter green.

Both of these cultivars were bred from plants removed from golf courses in New Zealand and Melbourne. They are equally suitable for lawns, but Sefton should give a more attractive appearance in specialist areas such as golf greens where maintenance is of a high standard.

CORRECTION

Spring 1982, Bulletin 25 - p.23

New blueberry cultivars, not feijoa, have been produced by tissue culture at the D.S.I.R. Palmerston North. The feijoa cultivars were simply selections from promising bushes and were bulked up by conventional methods.

THE PEPINO

by

Mr. M. Morley-Bunker, Dept. of Horticulture,
Landscape & Parks, Lincoln College

The pepino, *Solanum muricatum*, is attracting interest in New Zealand. The plant may crop heavily and the fruit has a wide range of uses.

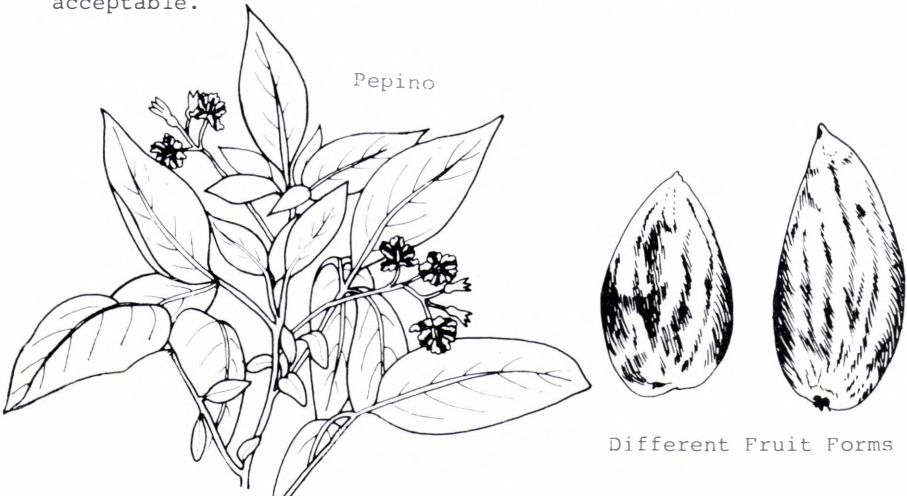
There are a number of cultivated varieties (cultivars) in New Zealand. Because seedling plants are variable in character, cultivars must be propagated by cuttings. There are many differences between cultivars, e.g. fruit shape, size. It is likely that some cultivars perform best in particular localities.

GROWING CONDITIONS

The frost sensitive nature of the plant determines that outside cropping should be carried out on sites where at least six months of the growing season will be frost free. This is not very different from the pumpkin and tomato. The sweeter pepino fruit are usually those that are formed first on the plant. These mature during the warmest summer months. If frosts are not experienced, continued flowering may produce a succession of fruit. The plant is perennial, if not frosted, but a loss of plant vigour and fruit size as the plant ages should be expected.

Shelter benefits most horticultural crops by encouraging good leaf and shoot production. However, it has been noticed that pepino fruit set is reduced if the plants are grown in plots with complete wind shelter. A little wind agitation seems to help fruit set.

Warm, well drained soils are required. Lighter soils are preferable to heavy soils. A pH range of 5.5 to 6.8 is acceptable.



PLANTING

Planting may start in October if protection from frost and cold is possible. Planting after mid December is unlikely to produce ripe fruit before frosts commence in autumn (although mature green fruit can be ripened off the plant, in a cool room). Plant into a weed-free, open soil. Planting on top of 10-15cm high ridges has given good results at Lincoln College. A black plastic mulch can be laid prior to planting and pepinos planted through the mulch. This aids weed control and may bring harvest dates forward slightly. Spacing between rows of 0.8 to 1.2m is practised. Plants may be spaced 0.6 to 1m apart in the row.

CULTURAL CONTROL

Irrigation after planting to encourage early root growth is recommended. Thereafter regular irrigation to maintain growth is required. The level of fertilisation has not been fully investigated. Excessive nitrogen levels retard flowering and fruiting. A fertiliser dressing at planting of 220g/m² of 12:10:10 NPK fertiliser (2.2 tonne/hectare) has been used at Lincoln College.

There have been pest and disease problems. Late blight (also found on potato) can be prevented with 'maneb'. In glasshouse conditions, whitefly, aphid, and two-spotted mite can be problems. The mite can be controlled with 'Omite', the others with 'Lannate' or 'Orthene'. In the field a further pest problem has been noticed. Caterpillar entry into the fruit at early fruit set, has caused considerable yield loss. A careful inspection and use of 'Orthene' and 'Lannate' may counter any problems.

Some people have successfully used stakes and trellis to hold the fruit off the ground. If the plants are grown as free standing bushes, either straw or plastic mulch will help keep the fruit on the ground clean.

HARVEST, STORAGE AND USE

The fruit produced from the first flowers will probably ripen on the plant before winter frosts. These fruit tend to have a better flavour and are sweeter than those fruit that are harvested as mature green/cream fruit. The ripe fruit will be yellow to orange in colour with a purple blush or striping. The green/cream fruit can be ripened in a cool, ventilated room or shed, taking 1-3 months to ripen. Ripe yellow fruit can be held for up to four weeks at temperatures of 3-5°C. All the fruit should be picked when autumn frosting threatens.

The fruit is very versatile and may be eaten as a fresh ripe fruit, or prepared in a number of ways. The addition of some sugar to accentuate flavour and lemon juice to prevent brown oxidation helps.

WHY CHANGE PLANT NAMES

by

Dr Eric Godley

Botany Division, DSIR, Christchurch

(from 'New Zealand Gardener' October 1982)

Many of you will have been puzzled, on opening a new botanical book, to find that a plant name used for years is now discarded in favour of something you have never heard of. What are botanists up to, you could reasonably ask. Why can't they make up their minds? There is rhyme and reason behind it all, of course, and I think it worth explaining.

One of the main reasons for name changes is that botanists are continually refining earlier classifications in order to bring species together into natural groups. More detailed study, often using methods and techniques unknown to earlier botanists, could show that a genus consists of two or more quite different groups of species, each warranting generic rank. New generic names are required. Here are some examples.

In 1863 Alan Cunningham named our toru *Persoonia toru* and this was its one and only name until recently. Then in 1975 two Australian botanists demonstrated that the toru differed so markedly from true *Persoonias* that it should be in a different genus. They called it *Toronia toru*.

Over the next few years we can also expect to see changes in the well-known names of some of our majestic podocarps. Thus whereas the totara, kahikatea, miro and matai have long been classified in the genus *Podocarpus*, it has always been recognised that they form a heterogeneous group; and relatively recent research on their anatomy, chromosome numbers and plant chemistry has clinched the view that these four species should be classified in three different genera.

Even the casual observer can see that the seeds of matai and miro are like small plums, whereas in totara and kahikatea a small seed sits on a fleshy cup. Because of this and many other differences, it has been proposed that miro and matai be set apart in a genus *Prumnopitys*. The name means plum-fruited (although the "fruits" are really seeds) and was given to a Chilean podocarp, rather like matai and miro, in 1860. As now defined, the genus *Prumnopitys* has nine species and extends from the Asian tropics through New Zealand to Central and South America.

The second reason for name changes concerns priority and is illustrated by the specific names of our two species of *Prumnopitys*.

The miro, *Podocarpus ferrugineus*, becomes *Prumnopitys ferruginea* as you might expect. But in the case of the matai, *Podocarpus spicatus*, it has been shown that the specific name, given in 1825, was preceded by another name in 1824. *Podocarpus spicatus* should have been *Podocarpus taxifolia* all these years, and its new name is *Prumnopitys taxifolia*.

With respect to totara and kahikatea, the first is a true *Podocarpus* and will remain as *Podocarpus totara*. The kahikatea differs in so many ways that it will become *Dacrycarpus dacrydioides* instead of *Podocarpus dacrydioides*. Indeed this new name has already been used by several authors.

There is one consolation in all this. If you are not convinced that a change is necessary, you can continue to use the old names. Everyone will know what you mean.

THESIS TITLES APPROVED FOR 1982

SCHEDULE	TITLE	STUDENT
I	An Investigation into Clonal Propagation of <i>Castanea sativa</i> by Budding Methods.	A. Petheram
I	A Study of Landscape Planning and Design for the Horticultural Development of Cemetery Areas.	J. Jackson
I	Landscape Design Construction for Urban Gardens in Otago.	K. Weir
I	Native Flora of N.Z. Suitable for Cultivation in Coastal Conditions.	J. Horne
I	An Investigation of Soft Landscape Options for Road Reserves in Hamilton.	J.A. Petheram
I	The Production and Culture of <i>Leucodendrons</i> by Cuttings.	C.S. Newton
II	A Detailed Consideration of the Propagation, Production, Harvesting and Marketing of Rock Melons for Export.	K.J. Hoare
IV	The Effect of Nutrition, Shade and Watering Rate on the Production of <i>Schlumbergera bridgesii</i> .	M.I. Spurway
IV	An Investigation of Polygamous and Dioecious Plants of <i>Idesia polycarpa</i> .	P.J. Carson

MIST CONTROLLERS FOR PROPAGATION

(from 'Greenhouse Control Systems'

by B.J. Hesse in 'Australian Horticulture' September, 1982)

Mist controllers that are in common use may be divided into three main types.

- (1) Time controllers
- (2) Sensing element or artificial leaf controllers
- (3) Radiant energy sensing controllers

The sensing element controllers may be further divided into two main types, the balance arm controller and the electronic controller with an electrode type sensor.

The mist controller may control the operation of one or more solenoid valves to turn the mist sprays on and off. Where the water supply system is capable of supplying all of the mist sprays at one time, it is possible to operate the system as a single area with the one control.

Where the water capacity required by the mist sprays exceeds that of the water supply system, the mist system is split into two or more areas. The operation of the mist sprays in a multi area system is then sequenced or interlocked so that only one area is operating at any given time. It is also generally desirable to be able to vary the mist spray operation over two or more areas of the total mist system to be able to wean cuttings from the mist after they have established a root system.

TIMER TYPE MIST CONTROLLERS

With the timer type misting controller, the operator selects the hours of operation per day and the duration and frequency of the bursts of mist from the sprays according to his judgement of the conditions required. He may for example set the controls to give a 5 second burst of mist once every 15 minutes for the daylight hours and for several short periods during the night hours.

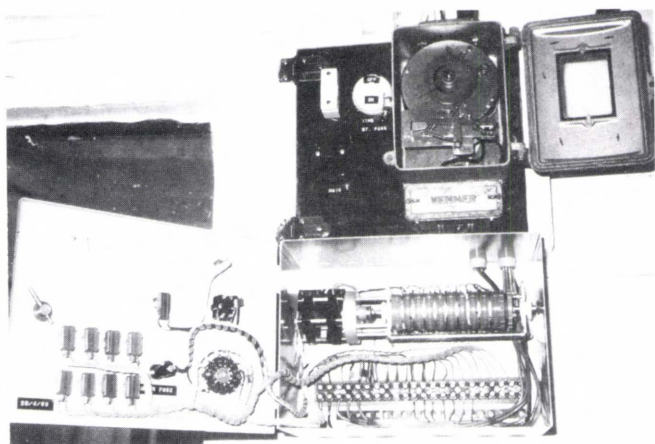
The control system components are :

1. A 24-hour time switch with multiple on/off settings, to control the hours of operation per day.
2. Two process timers and two relays connected so as to recycle to give a sequence of on/off operations.

Recycling timers which combine the functions of the two process timers and relays in one unit are also available.

One process timer with a range from 0.1 to 10 seconds controls the duration of the bursts of mist and another with a range from 0.3 to 30 minutes controls the frequency of the mist bursts.

The time switch and process timers control a solenoid valve operating either at mains voltage or at extra low voltage.



Timer Mist
Controller

BALANCE ARM MIST CONTROLLER

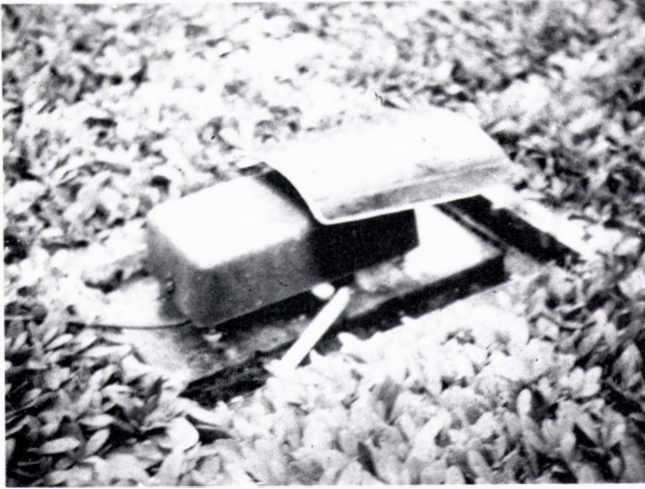
The sensing element of the balance arm mist controller is a piece of fine wire gauze approximately 50mm square. The wire gauze is mounted at one end of a centre-pivoted rod while an adjustable counter weight is located at the other end of the rod. Movement of the balance arm operates a mercury switch.

Water from the misting sprays falls on the wire gauze and when it has become sufficiently wet the balance arm tips. The mercury switch is then open and a solenoid turns the misting sprays off. The film of water on the gauze evaporates until the balance is again upset closing the switch and causing the mist sprays to operate again. The watering cycle is repeated at intervals according to the rate of evaporation of water from the gauze.

The wire gauze of the controller is located among the cuttings so that the water film on the wire gauze is representative of the water film on the leaves of the cuttings.

ELECTRONIC ARTIFICIAL LEAF SENSOR MIST CONTROLLERS

The sensing element of the electronic artificial leaf mist controller consists of two carbon or metal electrodes set in a plastic block. The sensing element is placed among the cuttings so that the water film on the surface of the plastic block between the sensing electrodes is representative of the water film on the leaves of the cuttings. Increasing the thickness of the water film by operating the misting sprays causes the resistance between the electrodes to decrease. Decreasing the thickness of the water film by evaporation causes the resistance to increase. The electronic circuit senses the resistance between the electrodes and operates a relay to turn the mist sprays on and off by means of a solenoid valve.



Balance Arm
Controller

RADIANT ENERGY SENSING CONTROLLERS

Radiant energy sensing controllers operate on the principle of the relationship between light intensity and the transpiration rate of plants. A photosensitive cell conducts an electric current which is proportional to the light intensity and hence the transpiration rate. This electric current is integrated by the electronic circuit of the controller and after a certain accumulation of radiant energy activates the solenoid valve to operate the mist sprays. The sensitivity of the controller is adjustable and at any given setting the higher the light intensity, the more frequently the mist sprays operate. This type of controller usually has an over-ride time control for situations where the transpiration rate is affected by air movement and relative humidity.

NEW MEDIUM

(from 'The Orchardist of New Zealand', September 1982)

A new growing medium which has exciting possibilities in the horticultural industry has been released to the market by N.Z. Forest Products Ltd.

Known as Fibremix, the product is a totally sterile growing medium produced from the bark of radiata pine trees.

Fibremix was developed in N.Z.F.P. laboratories by company scientists with assistance from the Ministry of Agriculture and Fisheries.

The product is the residue of a manufacturing process at N.Z.F.P.'s Kinleith Mills which extracts polyphenolic resins from the bark. The resins are then used in the manufacture of adhesive for the plywood and particleboard industries.

During the extraction process, the bark is subjected to a temperature of 100°C for two hours in a solution of sodium sulphite. This guarantees both the sterility of Fibremix and also product consistency.

It has other advantages.

It is made from a renewable resource and thus guaranteed to be available when non-renewable, mined product resources have been depleted. Also, the annual output capacity of the N.Z.F.P. plant greatly exceeds the current total usage of peat and bark in New Zealand, further ensuring all-year-round supply.

Furthermore, Fibremix could effectively provide a real boost to the horticultural industry's export potential as its sterility may well dispense with the need for the quarantine to which many horticultural products are subject.

MARKING OUT AN OVAL PLOT

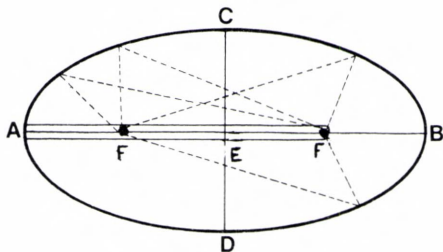
(from I. Laurenson, Executive Member, North Taranaki)

Some time ago candidates for the Diploma Oral and Practical were asked to mark out an oval plot with certain dimensions. As this is a popular shape for beds in public gardens and reserves, the accompanying illustration demonstrates the procedure to be followed.

Suppose the bed is to be 15m. long x 10m. wide. Mark out the two diameters A B and C D bisecting at right angles at the point E.

From the point D, with a length E B (i.e. half the long diameter) mark two points F on the long diameter. Insert pegs firmly at these two points.

Tie a loop of cord equal to twice the distance from one peg to the far end of the long diameter. Place a spike in the loop, still over both F pegs, and mark out the required design.



Marking out Oval Plot

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