



Plant Varieties Journal

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CONTENTS

	PAGE
REGISTRAR'S REMARKS	1
PART 1 — ITEMS OF GENERAL INTEREST	
IMPLEMENTATION OF PVR — PROGRESS	2
AMENDMENTS TO THE SCHEDULE	2
PROPAGATION	2
PERFORMANCE EVALUATION — Sale prior to application	3
VARIETY NAMES	3
AVAILABILITY OF PROTECTED VARIETIES	3
VARIETY IDENTIFICATION — Laboratory techniques	3
PVR LOGO	4
PVR TESTING — Register of names	4
UPOV	4
a) Membership	4
b) Revision of the Convention	4
PART 2 — MATTERS FOR PUBLIC NOTICE	5
APPLICATIONS ACCEPTED	5
a) descriptions finalised	5
b) descriptions to be finalised	23
2.2 PROVISIONAL PROTECTION	23
APPENDIX 1 — PROPOSED SCHEDULE FOR INCLUDING GENERA/SPECIES	24
APPENDIX 2 — SECTIONS 16 and 17 OF THE PVR ACT	25
APPENDIX 3 — SECTION 26 OF THE PVR ACT	26
APPENDIX 4 — SECTIONS 12 and 38 OF THE PVR ACT	26
APPENDIX 5 — PLANT VARIETY RIGHTS ADVISORY COMMITTEE (PVRAC)	27
APPENDIX 6 — SAMPLE PVR CERTIFICATE AND LOGO	28

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REGISTRAR'S REMARKS



1988 is almost over and the silly season is with us again. It is a time to reflect on the achievements of the past year and to look at future directions.

Plant Variety Rights in Australia became a reality in 1988. For many this is the culmination of years of hard work. The PVR Office and the PVR Advisory Committee have endeavoured to implement the system as quickly as possible to ensure that PVR is available to all those who wish to use it.

The identification of appropriate distinguishing characteristics is probably the most difficult task and will be an evolving process for some time yet. This will be assisted by the rapid rate of development of new laboratory assays but there are still many questions to be answered in relation to suitability and standardisation.

The future holds many challenges. The introduction of new plant breeding techniques and methods of identification require increasing levels of technical expertise. The interaction between PVR and patents if a patented gene is used in the development of a new variety is a grey area and depends very much on the scope of the individual patent. The huge task of dealing with the full range of plant species in the PVR scheme also provides considerable challenge.

However, if we continue to build on the co-operation and communication base established between all parties in 1988 I have no doubt that the issues will be resolved and that PVR in Australia will continue to grow from strength to strength.

The staff and the members of the Advisory Committee wish you

A MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR

Kathryn Adams
Registrar of Plant Variety Rights

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CLOSING DATE FOR MARCH ISSUE: 31 JANUARY 1989

CONTACT NUMBERS: REGISTRAR
EXAMINER
ADMINISTRATION/GENERAL

062 716472
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PART 1 — ITEMS OF GENERAL INTEREST

IMPLEMENTATION OF PVR — PROGRESS

A total of 36 applications had been accepted by 14 November 1988 and applicants have given notice of at least another 7 in preparation. The applications are from public and private sector breeders and for a wide range of plant groups.

AMENDMENTS TO THE SCHEDULE

New varieties are eligible for PVR if their genus or species is listed in the regulations under the *Plant Variety Rights Act 1987*.

The schedule at Appendix 1 provides advance notice of the eligibility of plants to allow potential applicants to plan their breeding programs. However the schedule may be varied if a valid need can be demonstrated. To allow time for adequate notice of any changes, submissions seeking an amendment can be made up to 5 months before the date of implementation.

The latin names of the genera and species in the schedule are important as they will be used in the regulations. The plant groups have been included in the schedule for convenience.

Proposed Amendments to the Schedule

Following the last edition of the Journal the PVR Advisory Committee has received an application to amend the schedule to include the genus *Carpobrotus* from 1 July 1989. The Plant Variety Rights Advisory Committee is also seeking comment on its proposal to include all fruit in JULY 1989 instead of MARCH 1990. If all fruit and vegetables are included at the same time it will alleviate any confusion about the genera and species involved.

Comment on these two proposals should be sent to the Registrar (address on page 1 of this journal) by 28 February 1989.

As no dissenting comment has been received following the call for comment on proposed amendments to the schedule in the September issue, the PVR Advisory Committee has recommended to the Minister that the following additional genera be included in the Regulations in January 1989: *Arachis*, *Bothriochloa* and *Agapanthus*.

From 1 January 1989 applications will be accepted for the genera and species listed in Appendix 1 under the columns headed "April 1988, July 1988 and January 1989".

PROPAGATION

In the last two editions of the Journal the PVR Advisory Committee called for comment on the need to change the legislation relating to **propagation if the final product is to be sold** (S12 and S38 of the PVR Act — Appendix 4). This was in

response to submissions from the horticulture, forestry and ornamental sectors indicating that PVR will only assist breeders and stimulate plant breeding if it gives the sole right to *PROPAGATE* (or license others to propagate) plants of the variety.

This proposal relates to **propagation only** and does not in any way extend the PVR to cover the product (eg the roses or fruit or grain) resulting from the propagation of a protected variety.

The objective of the proposal is to ensure that the PVR holder can obtain recompense from commercial growers who choose to propagate their own plants rather than buy the plants or reproductive material from the breeder. These growers receive considerable commercial gain from the efforts of the breeder but the latter sees minimal return for effort when asexual propagation is used.

There is **NO INTENTION** to stop people propagating protected varieties for their own use or for their own consumption ie in gardens. However **propagation** if you intend to sell the product will not be possible without the approval of the grantee of PVR (remember it is the **propagation** — PVR does not extend to the end product).

Without this amendment Australia could see a proliferation of non-propagation agreements which may be far more restrictive than the amendment. Breeders may export their good varieties rather than make them available in Australia and many overseas breeders will not release varieties in Australia as they could not obtain the level of protection provided in other countries.

Following six months for the lodging of submissions the PVRAC has considered all the cases presented. The majority of submissions supported option (b) (to extend PVR to cover commercial propagation for prescribed genera and species). A small number of submissions were against any change to the Act and a larger number supported restricting any change to asexual propagation for prescribed genera and species (option c).

On the balance of the evidence for a need to amend the PVR Act, the Advisory Committee has recommended to the Minister that:

- option (c) be included in the PVR Act; this would amend S12 to add a subsection giving the holder of PVR for genera and species covered by this amendment the exclusive right to asexually propagate, or license others to propagate, the variety for the purposes of commercial production of products of the variety (products include cut flowers, fruit and timber)
- the PVR holder must not withhold a licence from anyone who wishes to sign the agreement and the provisions of the licence should be reasonable.
- **NOTE** the provisions would only apply to the asexual propagation of genera and species listed in the regulations under this section of

the Act — this list of genera and species should **not be confused** with Appendix 1 of this journal (the list prescribing taxa eligible for PVR).

Call for Comment

If the amendment proposed above proceeds the PVR Advisory Committee is seeking comment on genera and species which should and should not be prescribed. Submissions should contain supportive data and also address the benefits and costs to consumers. People who have already made a submission including specific genera or species may wish to add more on the latter points.

Unless specific genera or species are identified for exclusion they will automatically be included in the Committee's recommendation (NOTE this amendment applies to asexual propagation and does not include seed grown varieties).

Further information or clarification relating to the proposed amendment may be obtained from the Registrar on 062 716472. Comment should be sent to the Registrar (address on P1 of this journal)
BY 28 FEBRUARY 1989.

PERFORMANCE EVALUATION — Sale prior to application

With many new varieties it is normal practice to carry out large scale field evaluation or processing trials prior to application for PVR.

The PVR Act specifies that the variety cannot have been sold with the consent of the breeder in Australia **before the PVR application is made** (PVJ 3 p4). Applicants should therefore ensure that any prior evaluation trials, bulking up or disposal of trial material does not involve a sale of plant or reproductive material. It is not permissible to sell material such as plants, fruit, grain or vegetables as these contain seed and therefore come under the definition of reproductive material even though the variety may never be grown from seed. Any contractual arrangements must ensure that ownership of the plant or reproductive material remains with the original breeder unless the right to the variety is being assigned.

It would be possible for the organisation carrying out the evaluation to sell product which does not constitute plant or reproductive material (eg beer, oil, starch etc). Trial material where the new variety is not clearly identifiable from a mixture of experimental lines or has not yet reached a uniform or stable state would not normally constitute the variety. **(The above criteria apply to a new variety before a PVR application is made — once PVR is granted the rights do not extend to product).**

Once an application for PVR has been accepted, plants or reproductive material can be sold for scientific purposes or bulking up without the loss of provisional protection.

VARIETY NAMES

Subsection 17 (2a) of the PVR Act states that the name of a new variety can only be accepted if it is not "likely to deceive or cause confusion". To ensure that a variety name does not fall into this category the following provisions apply:

- a) prefixes and suffixes added to the names of existing varieties will not be accepted, even if the two varieties were originated by the same breeder — such additions tend to be lost in common usage and the varieties are confused;
- b) a single breeder may use series names for varieties of the same species that he/she has bred if full words are used — eg 'Fantail Ultraviolet' and 'Fantail Flamingo'.

Exceptions will be made where a name has been accepted by an overseas PVR Office or where it is accepted practice in an industry (eg macadamia varieties are traditionally known by alphanumeric names in Australia and soybean varieties have similar numbers but these have significance relating to maturity date).

AVAILABILITY OF PROTECTED VARIETIES

Section 39 of the PVR Act requires holders of PVR to meet reasonable public demand for the variety at a reasonable price within two years of rights being granted. Some concern has arisen about varieties which are sold already grafted to a rootstock.

If there is a reasonable public demand for a protected variety either of rootstock or scion and the holder of the PVR does not make supplies available it could be possible for a compulsory licence to be issued to ensure that ungrafted material is available.

VARIETY IDENTIFICATION — Laboratory Techniques

The Plant Variety Rights Advisory Committee is reviewing the current status of laboratory techniques available for variety identification and their relevance to PVR.

Applicants are encouraged to use these techniques and supply assays for the new variety in comparison with the closest known variety. Details of the technique used, interpretation of the band patterns and information on the current status of applicability of the technique to the species must be supplied. The PVR Advisory Committee will use this information to develop new application forms which in the long term should reduce the number of field results required.

PVR LOGO

People who have been granted PVR for a particular variety will be entitled to use the PVR logo on plants or reproductive material of that variety. The logo is on the front of this Journal and also on the sample PVR Certificate at Appendix 6. It must be used in conjunction with the PVR Certificate number. False use of the logo would constitute false representation under subsection 52 (2) of the Act.

Holders may use a statement in conjunction with the logo which states "plants and reproductive material of this variety may not be sold or reproduced for sale without the authority of the holder of Plant Variety Rights, in accordance with the *Plant Variety Rights Act 1987*".

PVR TESTING -Register of Names

The plant Variety Rights Office is compiling a register of names of organisations who undertake PVR testing for other people. This list will be given to anyone who asks and no preference will be given to any organisation. If the list is not too large it will be published in this Journal.

Organisations interested in being on the register should write to the Registrar before 31 January 1989.

UPOV

a) Membership

The UPOV Council considered Australia's request for advice on the conformity of the PVR Act with the UPOV Convention, as a prerequisite for Australia's membership.

The Council has advised that our law substantially conforms and as a result it is anticipated that Australia will become a member of UPOV in January 1989.

This will give Australian breeders 12 months priority over others in applying for rights on a variety with described characteristics in all UPOV countries (Belgium, Denmark, France, Germany — FRG, Hungary, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Sweden, South Africa, Spain, Switzerland, United Kingdom, United States). Breeders from UPOV countries will have the same priority in Australia.

b) Revision of the Convention

Australia will join UPOV under the provisions of the existing Convention on which our PVR Act is based. However there is now discussion about revising the Convention to better meet the needs of breeders and to recognise the increasing role of biotechnology in plant breeding.

As a party to the existing Convention Australia would have the choice of signing the new Convention or staying with the existing provisions.

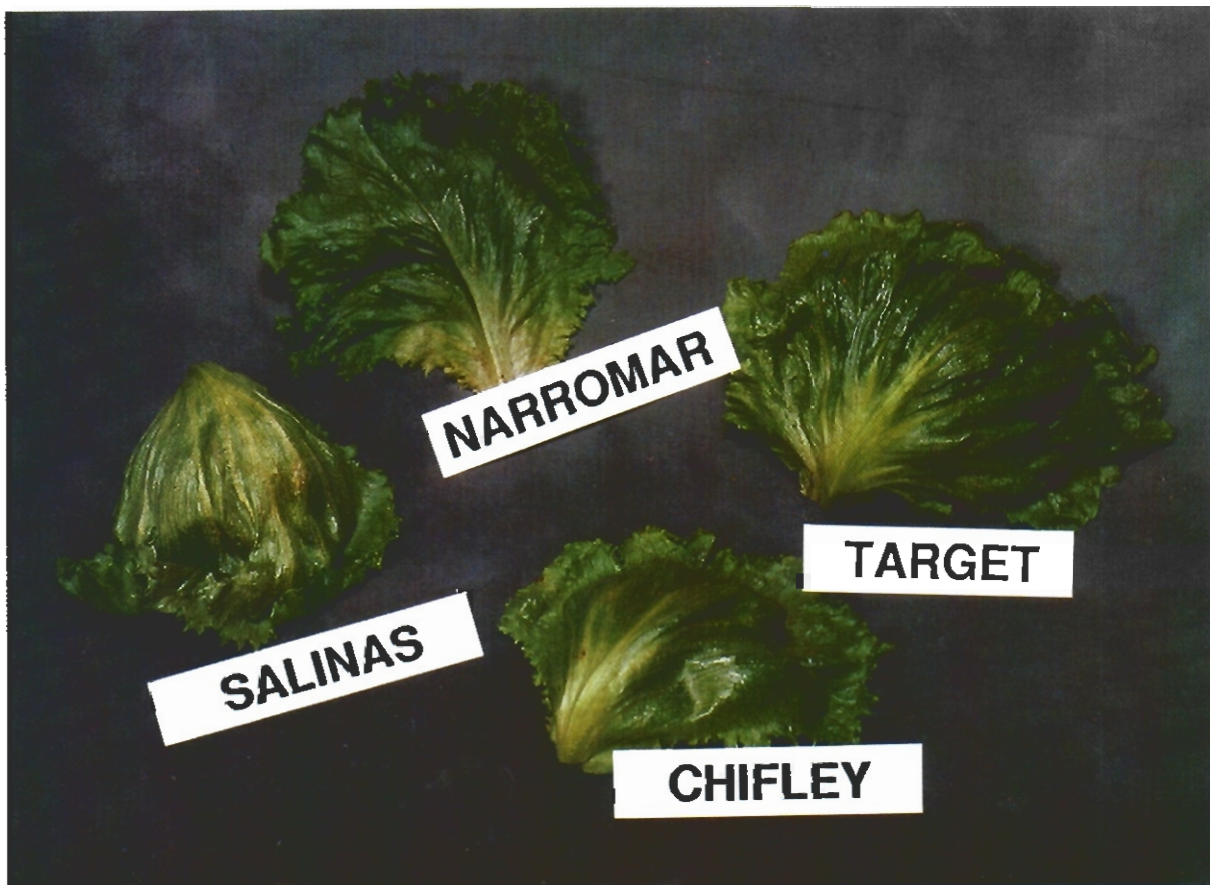
If you are interested in further information on the proposed changes as it becomes available, please write to the Registrar or contact Miriam Nauenburg on 062 723725.

PART 2 — MATTERS FOR PUBLIC NOTICE

2.1 — APPLICATIONS

(a) Descriptions Finalised

Applications for PVR for the varieties described below have been accepted under S18 of the *Plant Variety Rights Act 1987*



Cover leaf of lettuce varieties 'Chifley', 'Target', 'Salinas' and 'Narromar'. (Photo supplied by applicant)

LETTUCE (*Lactuca sativa*)

Variety: 'Chifley' Application No. 88/007
Applicant: **D Trimboli for Arthur Yates & Co. Pty. Ltd.**, of Narromine, New South Wales.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a phenotypic conformity to the 'Vanguard' group and the resistance factors R-1, R-3, R-5/8 and R-7 conferring resistance to downy mildew *Bremia lactucae*.

Varieties used for comparison

'Salinas' being the closest known in Australia.

Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at

Narromine, NSW, in 1988 with spaced plants grown from transplanted seedlings. Measurements are from 20 plants chosen at random of each cultivar. Resistance factors to *Bremia lactucae* were determined by assay against reference cultures at the Institute of Horticultural Research at Wellesbourne, United Kingdom in 1985 and 1986.

Origin

'Chifley' arises from the controlled pollination of 'Salinas' by Breeders strain, reference "# 78" which is itself a cross between 'Calmar' and 'Kordaat'. The male progeny was back-crossed to female 'Salinas' five times. Prior to back-crossing on each occasion the progeny was screened *in vitro* for resistance to *B. lactucae* downy mildew and selected for conformity to the parent 'Salinas'. On completion of back-crossing, ten resistant plants were self-fertilised and the progeny screened for complete resistance (indicating homozygosity). A further two seasons of selection were then made for phenotypic uniformity.

Morphology — See comparison tables.

'Chifley' is classed as a 'Vanguard' type of crisp-head lettuce with a firm, spherical, semi-covered head 16.2 (15.5–17) cm in diameter weighing 842.5 (700–1050) grams at maturity. It is medium maturing, taking 52 (51–57) days to maturity. There is no anthocyanin expression in foliage, the wrapper leaves are medium to dark green (RHS 146C) and internal leaves pale yellow-green (RHS 154C). The 4th leaf is broad elliptical in outline and neither lobed nor incised (as is 'Narromar'). 'Chifley' is slightly but significantly smaller in head size and weight than 'Salinas' or 'Target' in comparative growing trials. The distinction of this variety is in its resistance factors to *Bremia lactucae* which, in Australia, confers resistance to this disease whereas 'Salinas' is susceptible. Distinction from 'Target', which is also resistant to *Bremia lactucae* in Australia, is made by assay against reference isolates of the disease which must be done outside Australia.

LETTUCE

(*Lactuca sativa*)

Variety: 'Target' Application No. 88/008

Applicant: D Trimboli for Arthur Yates & Co. Pty. Ltd, of Narromine, New South Wales.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a phenotypic conformity to the 'Vanguard' group and the resistance factors R-5/8 and R-11 conferring resistance to downy mildew *Bremia lactucae*.

Varieties used for comparison

'Salinas' being the closest known in Australia.

Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at

Table of Comparison of Lettuce Varieties

Characters:		'TARGET'	'CHIFLEY'	'SALINAS'
MATURITY (No. days from transplant)	mean	53.4	52.7	52.3
	range	52–57	51–57	51–56
	standard deviation	1.4	1.5	1.4
HEAD WEIGHT	mean	995 g	842.5 g	951 g
	range	800–1250	700–1050	800–1150
	standard deviation	126	109	103
NO. OF HEADS PER 54 LITRE CARTON		12	16	16
HEAD DIAMETER	mean	17.9 cm	16.2 cm	16.8 cm
	range	17.0–19.0	15.5–17.0	16.0–18.0
	standard deviation	0.7	0.5	0.8
HEAD HEIGHT	mean	14.3 cm	13.6 cm	13.1 cm
	range	14.0–15.0	13.0–14.5	12.0–13.5
	standard deviation	0.5	0.6	0.9
CORE DIAMETER	mean	3.5 cm	3.4 cm	3.5 cm
	range	3.3–3.8	2.8–3.8	3.3–4.0
	standard deviation	0.1	0.2	0.2
CORE HEIGHT	mean	4.4 cm	3.9 cm	4.0 cm
	range	3.5–6.0	2.5–4.8	1.8–5.2
	standard deviation	0.8	0.7	0.8
FRAME DIAMETER	mean	41.5 cm	38.5 cm	38.4 cm
	range	39.0–45.0	37.0–41.0	37.0–41.0
	standard deviation	1.7	1.2	1.4
FRAME HEIGHT	mean	24.7 cm	22.0 cm	22.8 cm
	range	22.0–26.0	22.0–23.0	20.5–23.0
	standard deviation	1.5	1.1	1.0
SEED COLOUR		black	black	black
BREMIA RESISTANCE FACTORS		5/8, 11	1, 3, 5/8, 7	5/8, 7

Narromine, NSW, in 1988 with spaced plants grown from transplanted seedlings. Measurements are from 20 plants chosen at random of each cultivar. Resistance factors to *Bremia lactucae* were determined by assay against reference cultures at the Institute of Horticultural Research at Wellesbourne, United Kingdom in 1985 and 1986.

Origin

'Target' arises from the controlled pollination of 'Salinas' by 'Capitan'. The male progeny was back-crossed to female 'Salinas' five times. Prior to back-crossing on each occasion the progeny was screened *in vitro* for resistance to *B. lactucae* downy mildew and selected for conformity to the parent 'Salinas'. On completion of back-crossing, ten resistant plants were self-fertilised and the progeny screened for complete resistance (indicating homozygosity). A further season of selection was then made for phenotypic uniformity.

Morphology — See comparison tables.

'Target' is classed as a 'Vanguard' type of crisp-head lettuce with a firm, spherical, semi-covered head 17.9 (17–19) cm in diameter weighing 995 (800–1250) grams at maturity. It is medium maturing, taking 53 (52–57) days to maturity. There is no anthocyanin expression in foliage, the wrapper leaves are medium to dark green (RHS 146C) and internal leaves pale yellow-green (RHS 154C). The 4th leaf is broad elliptical in outline and neither lobed nor incised (as is 'Narromar'). 'Target' is slightly later to mature, larger and more variable in head size and weight than 'Salinas' or 'Chifley' in comparative growing trials. The distinction of this variety is in its resistance factors to *Bremia lactucae* which, in Australia, confers resistance to this disease whereas 'Salinas' is susceptible. Distinction from 'Chifley', which is also resistant to *Bremia lactucae* in Australia, is made by assay against reference isolates of the disease which must be done outside Australia.

RYEGRASS

(Lolium multiflorum)

Variety: 'Progrow' Application No. 88/010
Applicant: **Valley Seeds Pty Ltd**, of Alexandra, Victoria.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a diploid karyotype, an annual duration, a light green colour, a medium — prostrate growth habit, a medium-early heading date, over 50% of plants with a smooth rachis and all plants with awned lemmas.

Varieties used for comparison

'Grasslands Tama', 'Grasslands Paroa' and 'Grasslands Moata'. Comparisons are also made with 'Tetrone', 'Tetilla', 'NK Richmond', 'Concord', 'Grasslands Manawa' and 'Midmar' but not in the comparative growing trials.

Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at Ceres near Christchurch on the South Island of New Zealand in 1985. Trials consisted of 100 spaced plants per variety, sown in March in a randomised block design (10 replicates of 10).

Sward of Ryegrass 'Progrow' at heading. (Photo supplied by applicant)



Origin

'Progrow' is protected by Plant Variety Rights in New Zealand since November 1986 and has been sold there under the name 'Progrow' since March, 1987. The breeder is A.V. Stewart of Pyne Gould, Guinness Ltd., New Zealand. 'Progrow' originates from the polycross of selected parents from seed collected from a pasture near Blenheim in the Marlborough district on the South Island of New Zealand. The pasture had been sown over seven years previously with an unknown ecotype. From this seed, approximately 2000 spaced plants were sown and 105 were selected on the basis of leaf density, growth vigour and heading date. These were poly-crossed and the progeny were assessed for the same criteria as well as *in vitro* assay for seedling resistance to Argentine Stem Weevil (*Listronotus bonariensis*) indicating endophyte presence. 37 of these 105 lines were consequently selected and the progeny bulked to form 'Progrow'.

Morphology — See comparison tables.

The results of comparative field, glasshouse and laboratory trials conducted in 1986 between this and other ryegrass varieties in New Zealand have been published, in *Proceedings of the New Zealand Grassland Association*, Vol. 49 pp 101–106 in 1988 by Forde *et alii* of DSIR. Their trials also record plant growth, flowering and leaf characteristics. The comparative flowering dates, plant duration and growth habit agree with those recorded in the 1985 trials. Ranking for other characters in comparison with 'Grasslands Moata' and 'Grasslands Tama' are generally similar to 1985 data but tiller and flag leaf as well as no. florets per spikelet differ slightly in relation to those of 'Grasslands Paroa'. This indicates that, for characteristics other than those mentioned below, the varieties used for comparison appear to be similar.

'Progrow' is a Westerwolds type ryegrass with annual duration but is diploid; whereas 'Grasslands Moata', 'Grasslands Tama', 'Tetrone',

'Tetilla', and 'NK Richmond' are tetraploid; and 'Grasslands Manawa', 'Grasslands Paroa', 'Concord' and 'Midmar' are of biennial duration. Growth habit is less erect than 'Grasslands Tama' or 'Grasslands Moata' and slightly less erect than 'Grasslands Paroa'.

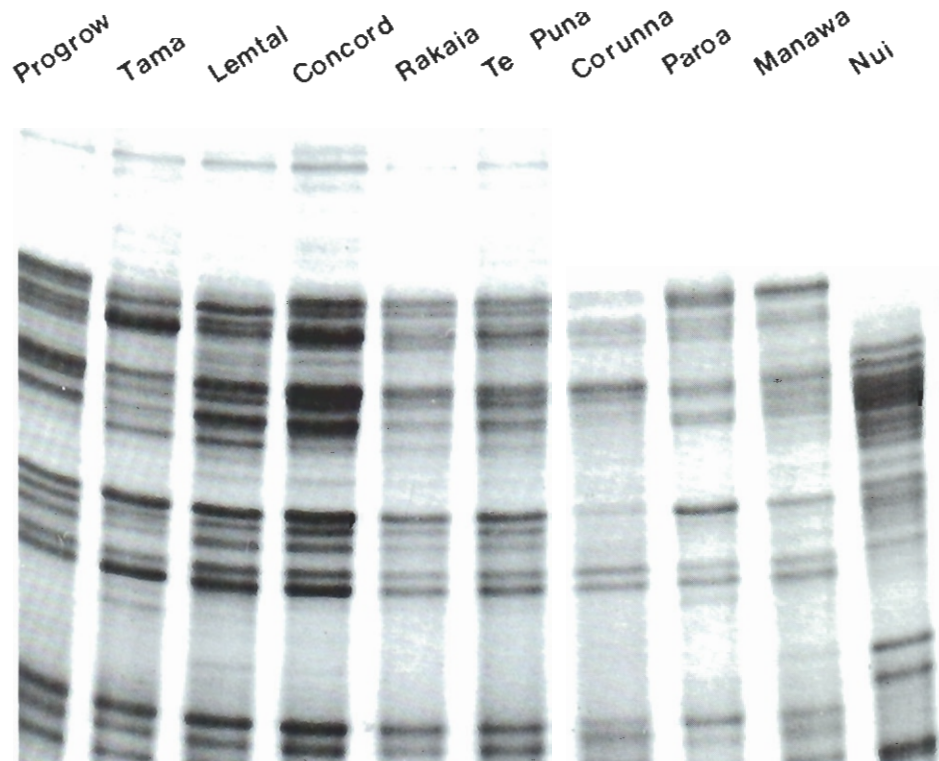
Leaf colour is paler than 'Grasslands Tama' or 'Grasslands Moata' and about the same as 'Grasslands Paroa'. Leaf length, width and auricle size are smaller than 'Grasslands Tama' or 'Grasslands Moata' and about the same as 'Grasslands Paroa'.

Heading dates are about the same as 'Grasslands Tama' and earlier than 'Grasslands Paroa', 'Grasslands Moata', 'Grasslands Manawa', 'Concord' and 'Midmar'. Seed weight for 'Progrow' is 2.15g/1000 which is lower than that of 'Grasslands Tama' (4.1g) or 'Grasslands Moata' (4.3g) and about the same as 'Grasslands Paroa'.

In addition to morphological data from growing trials, the applicant has submitted, as a distinguishing characteristic, prints of gel electrophoresis of seed protein extractions which display a consistently different banding pattern to those of the other varieties (see photograph). The technique is as described by S E Gardiner and M B Forde in *Seed Science & Technology*, 1987, Volume 15, pages 663–674, using sodium dodecylsulphate and polyacrylamide gel.

Agronomy

According to the applicant, 'Progrow' is suited to a wide range of areas where ryegrass is used. Field trials by the breeder in New Zealand and by the applicant in Australia indicate that, when sown in March, autumn and winter growth is greater than in 'Grasslands Paroa', 'Grasslands Moata' or 'Grasslands Tama' and Spring growth is similar to 'Grasslands Paroa', 'Grasslands Tama' and 'Grasslands Moata'.



Electrophoretic Gel of Ryegrass Varieties seed protein. (Photo supplied by applicant)

Table of Comparison of Ryegrass Varieties

All data is from 100 spaced plants measured in 1985 and characteristics, as measured, all meet the UPOV criteria for uniformity.

Plant Characters		'Progrow'	'Grasslands — — Tama'	— Paroa'	— Moata'
PLOIDY		diploid	tetraploid	diploid	tetraploid
PLANT DURATION		annual	annual	biennial	biennial
TILLER DENSITY (ranking 1-5)		med-high 3.1 (2-4)	med-low 1.4 (0-2)	med-high 3.0 (1-4)	med-low 1.7 (1-3)
GROWTH HABIT —EARLY SPRING		med-prost.	med-erect	medium	medium
<i>% of population</i>					
prostrate	0-15°	4%	0	1%	0
semi-prostrate	15-35°	25%	1%	12%	6%
intermediate	35-55°	58%	37%	69%	77%
semi-erect	55-75°	12%	53%	18%	16%
erect	75-90°	1%	9%	0%	1%
— POST HEADING		med-prost.	erect	medium	erect
<i>% of population</i>					
prostrate	0-15	6%	0	0	0
semi-prostrate	15-35	20%	15%	4%	0
intermediate	35-55	52%	13%	72%	28%
semi-erect	55-75	22%	40%	24%	64%
erect	75-90	0	32%	0	8%
AVERAGE LEAF HEIGHT					
mean		45.9 cm	64.2 cm	35.0 cm	47.8 cm
range		30-60	55-75	15-50	30-75
std deviation		9.9	7.2	9.1	9.6
STEM LENGTH					
mean		90.0 cm	109.3 cm	86.2 cm	99.4 cm
range		70-110	92-125	70-102	78-123
std deviation		10.2	7.3	7.2	11.2
NO. NODES ON TALLEST STEM					
mean		5.5	6.5	5.1	6.4
range		4-7	5-8	4-6	5-9
std deviation		0.8	0.8	0.8	1.0
Leaf Characters		'Progrow'	'Grasslands — — Tama'	— Paroa'	— Moata'
TILLER LEAF					
— LENGTH					
mean		21.1 cm	27.7 cm	22.6 cm	28.2 cm
range		14-29	22-36	14-30	18-36
std deviation		3.8	3.4	3.6	3.3
— WIDTH					
mean		9.3 mm	13.6 mm	10.2 mm	11.9 mm
range		6-14	9-17	5-13	7-15
std deviation		1.8	1.8	2.1	1.9
FLAG LEAF					
— LENGTH					
mean		17.6 cm	20.1 cm	17.8 cm	27.2 cm
range		12-25	13-30	13-22	16-32
std deviation		3.4	4.2	2.8	5.5
— WIDTH					
mean		9.0 mm	12.5 mm	9.6 mm	10.9 mm
range		6-12	9-16	7-12	9-13
std deviation		1.6	1.8	1.4	1.1
AURICLE SIZE (0 = absent — 3 = large)					
mean		1.6	2.2	1.8	2.7
range		1-2	1-3	1-2	1-3
std deviation		0.6	0.8	0.5	1.1

Table of Comparison of Ryegrass Varieties

Flowering Characters		'Progrow'	'Grasslands — — Tama'	— Paroa'	— Moata'
SPIKE LENGTH	mean	26.5 cm	31.5 cm	25.5 cm	31.0 cm
	range	19–34	25–38	18–31	25–38
	std deviation	3.9	3.8	3.3	4.4
SPIKELET LENGTH	mean	19.2 mm	20.0 mm	20.7 mm	21.9 mm
	range	13–27	13–25	15–25	17–26
	std deviation	3.1	2.9	2.6	2.5
GLUME/SPIKELET LENGTH RATIO		47.4	41.0	44.9	45.2
FLORETS PER SPIKELET	mean	11.7	10.5	13.1	10.4
	range	8–14	7–14	10–17	8–13
	std deviation	1.5	1.6	1.8	1.1
PERCENTAGE PLANTS WITH SMOOTH RACHIS		57%	36%	33%	31%
AWN LENGTH	mean	5.6 mm	7.2 mm	5.2 mm	5.1 mm
	range	3–9	5–10	1–11	2–8
	std deviation	1.9	1.5	2.2	1.7
FLOWERING DATES					
	Mean heading date	9 Nov. 85	10 Nov. 85	14 Nov. 85	12 Nov. 85
	date first 5%	3 Nov. 85	5 Nov. 85	9 Nov. 85	8 Nov. 85
	date last 5%	14 Nov. 85	15 Nov. 85	21 Nov. 85	20 Nov. 85
	% plants by 12 Nov.	93%	83%	44%	48%

KANGAROO PAW (*Anigozanthos hybrid*)

Variety: 'Firefly' Application No. 88/031
Applicant: **NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants (Research) Pty Ltd, of Armidale, NSW.**

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: arching leaves; average flowering stem length of about 28 cm; a flower with a yellow-green perianth flaring distally, a yellow ovary covered with red hairs and a style ending below the anthers; and flowering throughout the year.

Varieties used for comparison

'Pixie Paw' because of its similar growth habit, as well as the suspected parent species *Anigozanthos bicolor* and *A. humilis*.

Comparative Growing Trials

All characteristics described and comparisons are from potted plants growing in open-sided unheated polyethylene greenhouses at the Horticultural Research Station, Gosford on the Central Coast of NSW, in 1988. Measurements given are each of a random sample of 20 specimens.

Origin

The breeder is G Lamont of NSW Department of Agriculture and Fisheries. This variety arises from the selection of a plant from seedlings grown at Gosford, NSW. The criteria for selection were flower colour, flowering duration, growth habit and stem length. Subsequent plants have been propagated asexually from that seedling by tissue culture.

Morphology — See comparison tables.

'Firefly' is a short-medium height variety with yellow-green perianths and a yellow ovary clad in red hairs. Its measured average flowering stem length (measured to top of stem) was nearly 3 times that of 'Pixie Paw' (28.1 cm compared to 10.3 cm). It is believed to be a hybrid between *A. bicolor* and *A. humilis* as it shares characteristics with both species.

Other characteristics were measured for 'Firefly' but not in comparison with the other varieties and are, therefore, not in the comparison tables but may also distinguish it from other varieties. Some of these are given below to further define the variety:

Flower stems are unbranched green, (RHS 144A), with a medium-dense cover of red (RHS 59A) hairs

	mean	range	std
flower stem width at base :	3.25mm	2.6–3.9	0.38
— midway :	2.99mm	2.5–3.7	0.34
— base of first flower :	2.85mm	2.3–3.4	0.26

The six stamens are arranged in pairs at 3 levels; the anthers are yellow (RHS 16B) and mean 2.8 mm long (range 2.5–3.0, std 0.18). Filaments are straight, the most distal being mean 3.89 mm long (range 3.0–4.4, std 0.61)

Table of Comparison with Anigozanthos varieties.

Plant Characters		'Firefly'	'Pixie Paw'	<i>A. bicolor</i>	<i>A. humilis</i>
HEIGHT	Mean	28.1 cm	10.3 cm	21.4 cm	
	Range	18–37	6.5–22.5	10.0–36.0	
	std deviation	5.1	4.14	6.8	
FLOWERING SEASON		year round	not known	Aug to Nov	Aug to Nov
LEAF LENGTH	Mean	14.2 cm	5.4 cm	13.9 cm	15.6 cm
	Range	11–16	3.7–7.3	10.9–18.7	9.8–20.5 *
	std deviation	1.7	1.1	2.3	3.1
WIDTH	Mean	5.0 mm	2.9 mm	6.1 mm	10.4 mm
	Range	3.5–7.0	2.0–4.5	4.4–8.3	6.6–14.9
	std deviation	1.03	0.72	1.2	2.5
ATTITUDE		arching	upright	upright	strongly arching
COLOUR		green 137A	grey green 189A & B	grey green 189A	green 137A
MARGINS		pubescent	smooth or slightly pubescent	smooth or slightly pubescent	pubescent
* = measured along the arc of the leaf					
Flower Characters		'Firefly'	'Pixie Paw'	<i>A. bicolor</i>	<i>A. humilis</i>
ANTHER POSITION		Lateral rows (3 levels)	Surrounding (2 levels)	Surrounding (2 levels)	Lateral rows (3 levels)
FLORAL TUBE OUTLINE		flared distally	flared distally	constricted above the middle	flared distally
PERIANTH LENGTH	Mean	39.7 mm	25.4 mm	45.7 mm	-
	Range	38.5–43.4	23.3–28.3	36.0–52.4	
	std deviation	1.18	1.17	4.7	
PERIANTH WIDTH	Mean	10.9 mm	7.73 mm	10.85 mm	-
	Range	10.0–12.4	6.8–9.1	10.0–12.6	
	std deviation	0.69	0.16	0.95	
PERIANTH LOBES		fully reflexed	fully reflexed	fully reflexed	half reflexed
FLOWERS PER INFLORESCENCE	Mean	17.65	5.4	8.4	-
	Range	10–28	2–17	6–14	
	std deviation	4.8	2.5	2.5	
INFLORESCENCES PER PLANT	Mean	17.4	6.94	-	-
	Range	10–33	3–11		
	std deviation	7.1	2.7		
STYLE LENGTH		much shorter than anthers	level with anthers	protruding beyond anthers	protruding beyond anthers
COLOUR OF OPENED FLOWER TUBE		green 151A	green 143C	green 144B & C	green 144A
— HAIRS ON TUBE		black 202A	green 143C	green 146A	yellow 15A
— OVARY		yellow 17B	red 53A	red 53A & B	yellow 17A
— HAIRS ON OVARY		red 46A	red 53A	red 53A & B	yellow 17B



Left. Floral tubes of *Anigozanthos* varieties 'Pixie paw' (small), 'Firefly' (middle) and *bicolor* (large).
Below. Firefly in flower in 12.5 cm pot.



LECHENAULTIA (*Lechenaultia formosa*)

Variety: 'Fantail Flamingo' Application No. 88/034

Applicant: **NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants (Research) Pty Ltd.**, of Armidale, NSW.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a large flower with frilled and rounded lower wings; deep-pink petals; and a bushy and erect growth habit.

Varieties used for comparison

'Princess Pink' as the seed parent.

Comparative Growing Trials

All characteristics described and comparisons are from potted plants growing in open-sided unheated polyethylene greenhouses at the Horticultural Research Station, Gosford on the Central Coast of NSW, in 1988. Measurements given are each of a random sample of 20 specimens.

Origin

The breeder is G Lamont of NSW Department of Agriculture and Fisheries. This variety arises from the controlled pollination at Gosford of 'Princess Pink' by a collected *L. formosa* plant with small orange/red flowers, Breeders accession No "5". Seeds were germinated and a seedling was selected for its growth habit, flowering duration and the size and colour of its flowers. Subsequent plants have been propagated asexually from that seedling by tissue culture and stem cuttings.

Morphology — See comparison tables.

'Fantail Flamingo' is a small bushy plant 10–17 cm tall, flowering cyclically but frequently throughout the year in protected cultivation. Open flowers are a deeper and more uniform pink than those of 'Princess Pink'. They are also on average, about 40% broader and taller (25.1 × 19.8 mm for 'Fantail Flamingo' compared with 17.8 × 13.5 mm for 'Princess Pink'). The wings on the lower petal are much larger, almost touching apically and leaving a narrow slit between them compared with a broad vee on those of 'Princess Pink'.

LECHENAULTIA (*Lechenaultia formosa*)

Variety: 'Fantail Starburst' Application No. 88/032

Applicant: **NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants (Research) Pty Ltd.**, of Armidale, NSW.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a large flower with predominantly red petals, a yellow centre and a corolla tube which is predominantly maroon externally.

Varieties used for comparison

'Sunrise' and the pollen parent *L. formosa*, Breeder's accession No. "4".

Comparative Growing Trials

All characteristics described and comparisons are from potted plants growing in open-sided unheated polyethylene greenhouses at the Horticultural Research Station, Gosford on the Central Coast of NSW, in 1988. Measurements given are each of a random sample of 20 specimens.

Origin

The breeder is G Lamont of NSW Department of Agriculture and Fisheries. This variety arises from the controlled pollination at Gosford of 'Sunrise' by a collected *L. formosa* plant with orange/red flowers and a prostrate growth form (similar to but not the cultivar 'Prostrate Red'). Seeds were germinated and a seedling was selected for flowering duration and the size and colour of its flowers. Subsequent plants have been propagated asexually from that seedling by tissue culture and stem cuttings.

Morphology — See comparison tables.

'Fantail Starburst' is a small prostrate plant up to 10 cm tall, flowering cyclically but frequently throughout the year in protected cultivation. Open flowers have yellow centres encroaching up to a quarter of the petal lobes compared with the yellow on 'Sunrise' encroaching up to half of the petal lobes. The corolla tube is predominantly maroon in contrast to that of 'Sunrise' being predominantly yellow. Flowers are, on average, about 50% broader and taller (30.6 × 22.1 mm for 'Fantail Starburst' compared with 20.3 × 15.4 mm for 'Sunrise') than 'Sunrise' but not significantly different in size to the pollen parent.

LECHENAULTIA (*Lechenaultia hybrid*)

Variety: 'Fantail Ultraviolet' Application No. 88/033

Applicant: **NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants (Research) Pty Ltd.**, of Armidale, NSW.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a violet blue flower paling to mauve at the centre; a flowering period of autumn to late spring; five winged petals; and a corolla tube with both a basal tuft and lining of hairs internally.

Varieties used for comparison

L. formosa, Breeders accession No. "6" which is the seed parent and *L. biloba*, the common blue form which is the pollen parent.

Comparative Growing Trials

All characteristics described and comparisons are from potted plants growing in open-sided unheated polyethylene greenhouses at the Horticultural Research Station, Gosford on the Central Coast of NSW, in 1988. Measurements given are each of a random sample of 20 specimens.

Origin

The breeder is G Lamont of NSW Department of Agriculture and Fisheries. This variety arises from the controlled pollination at Gosford of *L. formosa*, by *L. biloba*. Seeds were germinated and a seedling was selected for flowering duration and the size and colour of its flowers. Subsequent plants have been propagated asexually from that seedling by tissue culture and stem cuttings.

Morphology — See comparison tables.

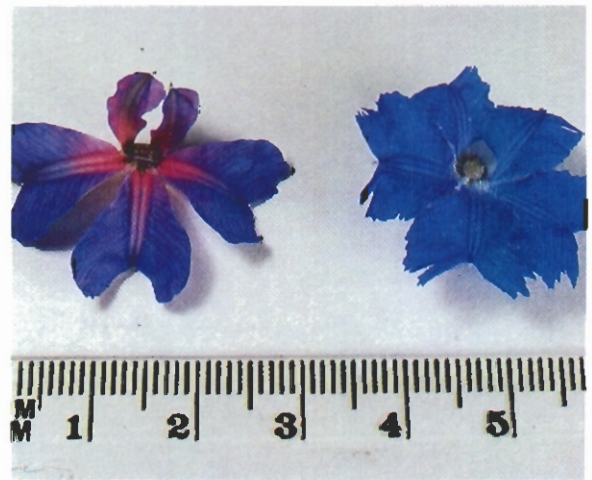
'Fantail Ultraviolet' is a small erect plant up to 37 cm tall, flowering from Autumn to late Spring in protected cultivation. Open flowers are violet blue paling at the centre to mauve compared with the uniform blue or the uniform orange of its parents. While the corolla tube of *L. biloba* is lined with hairs along the margins of its constituent fused petals and that of *L. formosa* has a dense tuft at the base of the tube, the corolla tube of 'Fantail Ultraviolet' has both.



L. formosa 'Fantail Flamingo' (left) and 'Princess Pink' single flowers. 'Fantail Flamingo'.



L. formosa 'Fantail Starburst' (left) and 'Sunrise' single flowers. 'Fantail Starburst'.



Lechenaultia 'Fantail Ultraviolet' (left) and *L. biloba* single flowers. 'Fantail Ultraviolet'. (Photos supplied by applicant)

Table of Comparison of Lechenaultia varieties

species	<i>L. formosa</i> 'FANTAIL FLAMINGO'	<i>L. formosa</i> 'PRINCESS PINK'	<i>L. formosa</i> 'FANTAIL STAR- BURST'	<i>L. formosa</i> strain "4"	<i>L. formosa</i> 'SUNRISE'	<i>L. hybrid</i> 'FANTAIL ULTRA- VIOLET'	<i>L. biloba</i> blue form	<i>L. formosa</i> strain "6"
Flower Characters								
FLOWER WIDTH (mm)								
mean	25.1 mm	17.8 mm	30.6 mm	28.0 mm	20.3 mm	29.3 mm	28.7 mm	28.7 mm
range	21.9–27.4	15.9–20.3	28.0–34.2	22.0–35.1	17.9–22.4	22.0–32.6	24.4–34.5	25.8–32.1
std. deviation	0.58	1.19	1.72	3.2	1.46	2.4	2.3	1.9
FLOWER HEIGHT (mm)								
mean	19.8 mm	13.5 mm	22.1 mm	22.1 mm	15.4 mm	24.7 mm	24.9 mm	21.6 mm
range	18.1–21.4	11.4–16.1	21.0–24.4	17.3–26.8	13.7–17.7	21.2–29.4	21.4–29.5	18.8–23.8
std. deviation	1.07	1.17	0.85	2.4	1.44	2.2	2.5	1.6
COROLLA LENGTH—from base to petal slit (mm)								
mean	13.0 mm	9.7 mm	15.03 mm	15.57 mm	13.5 mm	11.61 mm	8.39 mm	15.4 mm
range	10.7–14.2	9.0–11.5	13.8–16.0	14.0–17.8	11.5–14.7	10.0–12.7	7.0–13.8	14.7–16.6
std. deviation	0.84	0.59	0.62	0.98	1.0	0.90	0.58	0.73
OVARY LENGTH (mm)								
mean	11.23 mm	8.38 mm	14.31 mm	11.8 mm	13.4 mm	14.2 mm	18.9 mm	16.8
range	9.0–13.0	6.8–10.0	12.5–15.9	9.9–14.5	10.7–15.80	12.1–17.6	13.4–20.0	12.9–18.5
std. deviation	1.14	0.85	0.92	1.43	1.59	1.47	2.2	1.65
LOWER WING WIDTH (mm)								
mean	5.23 mm	3.05 mm	6.90 mm	7.3 mm	6.0 mm	–	–	–
range	4.2–6.1	2.1–3.7	6.0–7.9	5.9–8.6	5.0–7.5	–	–	–
std. deviation	0.60	0.44	0.62	0.75	0.71	–	–	–
UPPER PETAL WING	medium small	small	small	medium small	small- absent	medium	large	medium
1–9 rank	3	2	2	3	1	5	9	6
PETAL COLOURS (RHS Chart No.)	deep pink	pink	red + yellow	red	red + yellow	violet + mauve	blue	orange
just open	48B whole	51A margin 161C centre	45A margin 32A body 17A centre	45A whole	45B outer 17A centre	93B whole	95A whole	28A whole
fully open	61B margin 61C body	63A margin 49B + C body	46A margin 33A body 15A centre	45A whole	45B outer 17A centre	94A outer 75A centre	99B outer 99C centre	28A whole
aged	61C margin 63B body 31C centre	51A margin 54B body 4C centre	46A outer 15B centre	46B outer 44B centre	35A outer 17A centre	96B outer 75D centre	99A whole	28A whole
COROLLA TUBE MAIN COLOUR (external)	dark pink 59D	orange-pink 42D	maroon 59A	red 46A	yellow 20A	pale orange 31C	yellow 10B	orange 34B
Plant Characters	<i>L. formosa</i> 'FANTAIL FLAMINGO'	<i>L. formosa</i> 'PRINCESS PINK'	<i>L. formosa</i> 'FANTAIL STAR- BURST'	<i>L. formosa</i> strain "4"	<i>L. formosa</i> 'SUNRISE'	<i>L. hybrid</i> 'FANTAIL ULTRA- VIOLET'	<i>L. biloba</i> blue form	<i>L. formosa</i> strain "6"
FLOWERING SEASON	year-round	winter to spring plus	year-round	year-round	year-round	autumn to late spring	winter to spring	year-round
GROWTH HABIT ranking 1–9	erect –	prostrate –	prostrate –	prostrate –	prostrate –	erect 7	semi-erect 5	prostrate 2
HEIGHT (at 4–12 months)	10–17 cm	10–17 cm	up to 10 cm	5–7 cm	11–19 cm	up to 37 cm	up to 25 cm	up to 10 cm
STEM COLOUR (RHS Chart No.)	144B green	144B green	144B green	143C green	145A green	144A green	183A green	178A green
LEAF COLOUR	–	–	137A	137A	138A	137A	143B	138A
LEAF LENGTH (mm)								
mean	9.56 mm	5.68 mm	8.2 mm	12.3 mm	6.58 mm	8.5 mm	5.7 mm	8.11 mm
range	7.3–12.9	4.4–6.9	6.8–9.2	9.5–14.0	5.1–8.4	5.9–12.1	4.9–7.9	7.2–9.0
std. deviation	1.64	0.66	0.75	1.4	1.12	1.8	1.45	0.62
LEAF WIDTH (mm)								
mean	1.26 mm	0.67 mm	0.75 mm	0.70 mm	0.68 mm	0.80 mm	0.65 mm	0.81 mm
range	0.9–1.7	0.6–0.8	0.5–1.1	0.6–0.9	0.5–0.9	0.7–1.1	0.5–0.8	0.5–1.0
std. deviation	0.19	0.06	0.16	0.09	0.12	0.12	0.09	0.14

PINK SERRADELLA (*Ornithopus sativus*)

Variety: 'Grasslands Koha' Application No. 88/035

Applicant: **Grasslands Division, DSIR** of Palmerston North, New Zealand, on behalf of Her Majesty The Queen in Right of New Zealand.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: pale pink flower petals, a medium-late flowering period, semi-erect growth habit and dense branching.

Varieties used for comparison

'Maia', 'La Coruna', 'Aza', 'Biata', 'Vinar' and 'German Commercial', which are varieties from Europe.

Comparative Growing Trials

All characteristics described and comparisons are from potted plants grown in a glasshouse at Palmerston North, near Auckland on the North Island of New Zealand in 1986. Measurements given are each of a random sample of 20 specimens. In addition, data from 100 spaced plants grown at Palmerston North sown in spring 1987 as well as 100 stems randomly picked from plots sown in Autumn 1987, 7 months earlier, is also provided.

Origin

'Grasslands Koha' has Plant Variety Rights protection in New Zealand since March 1988. The breeder is G de Latour of Grasslands Division, DSIR. This variety arises from selection within an unnamed commercial seedline imported to New Zealand from Europe in 1958. Between 1966 and 1975 selections of the self-pollinating population were performed on the basis of growth vigour, disease tolerance and flowering characteristics.

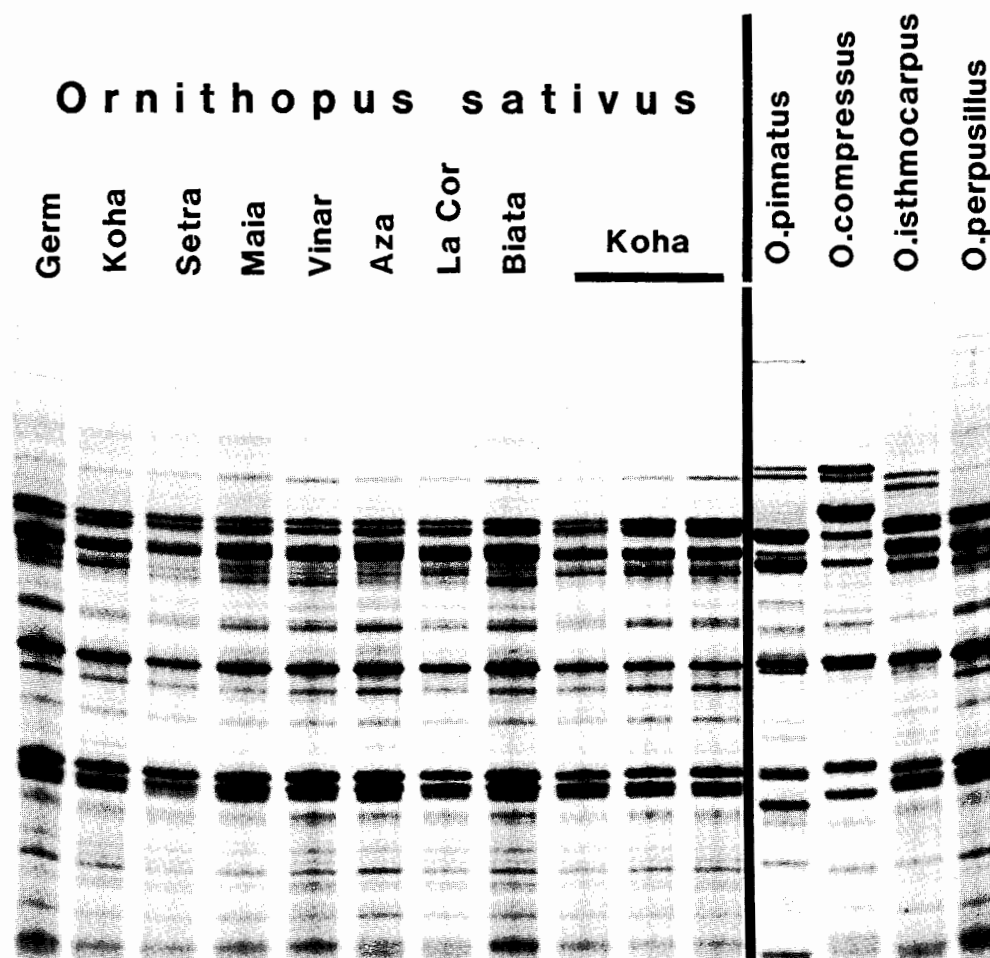
Morphology — See also comparison tables.

Because 'Grasslands Koha' is the first known general cultivar of *O. sativus* in Australia, a general description applying to all varieties of the species is given below:

O. sativus is a soft herbaceous annual legume, pale greyish green in colour and velvety hairy in all parts. The slender semi-viny stems are weakly four-sided, bearing well-spaced, alternate, sessile, pinnate leaves with oblong, obtuse to sub-acute leaflets.

Seedlings initially branch densely from early nodes to form a small rosette. The first leaf has 4–5 pairs and the second leaf 7–8 pairs of leaflets 7–8 mm long. Young vegetative plants are semi-erect, 10–15 cm tall and strongly branched, with leaves up to 17 cm long, bearing 18 pairs of leaflets up to 15 × 7 mm.

When flowering time approaches, stems elongate rapidly and branch from the lower nodes. At the time the first flowers appear the major stems are 100–130 cm long. The largest leaves on these stems are 15–22 cm long and bear 18–20 pairs of leaflets. In glasshouse plants or spaced



Electrophoretic Gels of Serradella (*Ornithopus*) species and varieties seed protein. Each run of 'Grasslands Koha' represents a different seed sample. (Photo supplied by applicant)

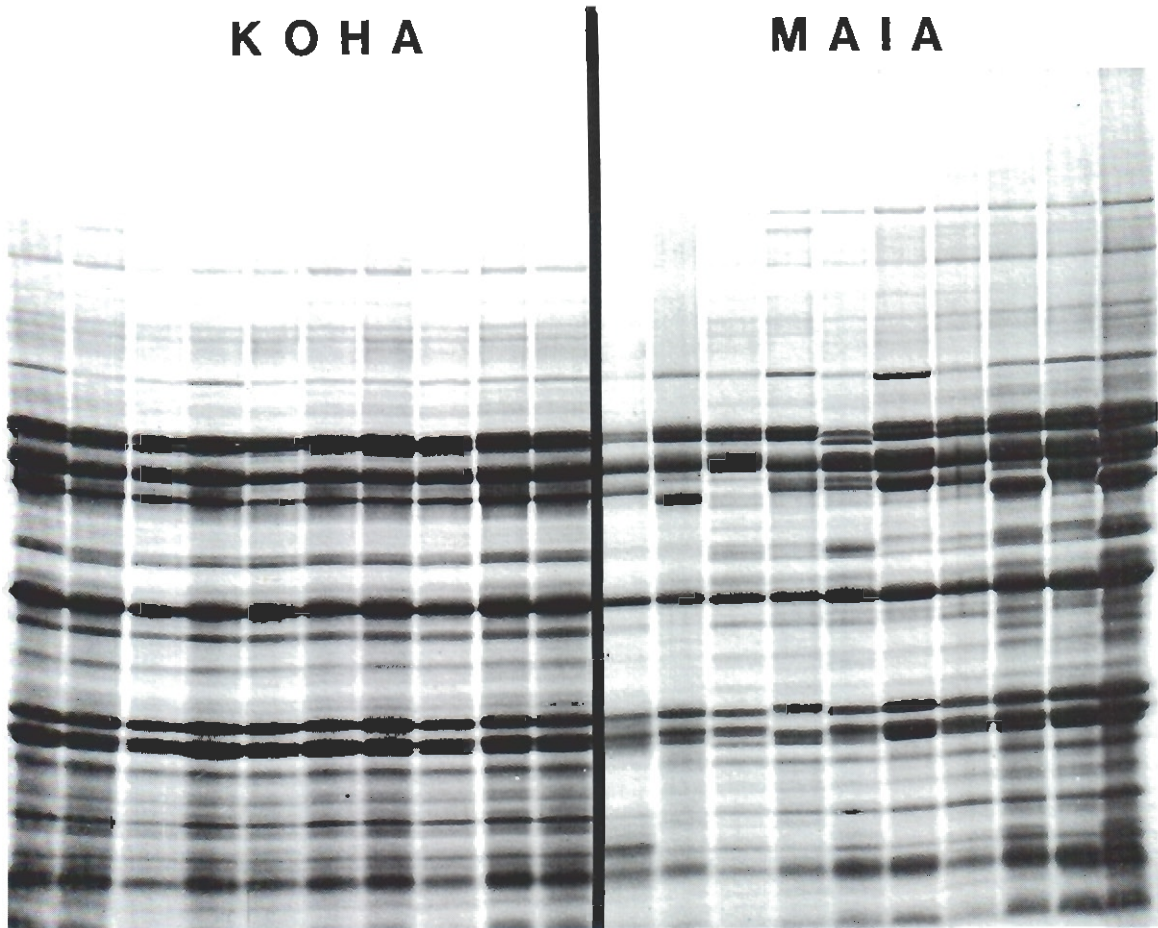


Above. Pink Serradella 'Grasslands Koha' in flower.

Below. Electrophoretic Gels of Pink Serradella seed proteins ('Grasslands Koha' left). Each run represents a single seed. (Photos supplied by applicant)

K O H A

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plants in the field, these stems become prostrate or decumbent as they elongate, but in a crowded field crop the growth is more erect and up to 50 cm tall.

The first flowers are borne in simple axillary clusters of 5–6 near the tips of the stems, on peduncles about equal in length to the subtending leaves. A large leafy pinnate bract occurs just below the flowers. Simple axillary clusters continue to appear acropetally at subsequent nodes on the main stems, and also near the tips of the axillary branches in the lower parts. At the same time, more complex interrupted flower clusters with several bracts develop basipetally from the first flowering node until the highest axillary branch is reached and no empty nodes are left.

Flower buds are pink. In open flowers the standard is pale pink with darker veins and the wings and keel are nearly white. Fading flowers again appear darker pink. the standard is about 4 mm wide with limb 5–5.5 mm long. The calyx is 4.5 mm long. the flattened beaked pods are 23–25 mm long (excluding beak) and 6-lobed, eventually breaking up into 6 one-seeded oval segments.

'Grasslands Koha', being a variety of *O. sativus*, is distinct from varieties of *O. compressus* (yellow serradella) and *O. pinnatus* (slender serradella) in having a pink flower corolla and segmenting pods, compared with their yellow corollas and non-segmenting pods, as well as other botanical species differences.

'Grasslands Koha' has pale pink flowers whereas 'Biata' has white flowers and those of 'Aza' and 'German Commercial' are darker pink. It is as densely branched as 'La Coruna' (more densely than 'Aza' or 'Maia') and as erect in growth habit as 'Maia' (more erect than 'La Coruna' but less erect than 'Aza', 'Biata' or 'German Commercial'). It flowers later than 'Aza', 'Maia', 'Biata' or 'German Commercial' but earlier than 'La Coruna'.

In addition to morphological data from growing trials, the applicant has submitted, as a distinguishing characteristic, prints of gel electrophoresis of seed protein extracts which display a consistently different banding pattern to those of the other varieties in the same and other *Ornithopus* species (see photographs). The 3 bands shown for 'Grasslands Koha' each represent a different seed line. The technique is as described by S E Gardiner and M B Forde in *Plant Varieties and Seeds*, 1988, Volume 1, pages 13–26, using sodium dodecylsulphate and polyacrylamide gel.

Agronomy

'Grasslands Koha' is intended as an annual winter forage plant which the applicant believes to be suited to acid sandy soils in regions with a warm-temperate or Mediterranean type of climate.

Table of Comparison of Serradella Varieties

Sample size of 20 from potted glasshouse plants.

Plant Characters	'Grasslands Koha'	'Biata'	'Aza'	'Maia'	'German Commercial'	'La Coruna'
GROWTH HABIT (ranking 1–9)	semi-erect 5	erect 3	erect 3	semi-erect 5	erect 3	prostrate 7
BRANCHING DENSITY (ranking 1–9)	dense 8	sparse 4	moderate 7	sparse 4	very sparse 2	dense 9
NO. STEMS & BRANCHES (at first flower)						
mean	63	34	44	45	24	59
range	42–78	24–51	37–53	25–65	17–32	50–77
std deviation	12.57	8.86	5.65	13.33	6.22	12.51
STEM LENGTH (to first flower)						
mean	108.8 mm	105.6 mm	96.5 mm	108.5 mm	83.1 mm	139.4 mm
range	97–128	71–122	80–114	91–123	65–115	96–180
std deviation	10.53	16.88	13.97	9.88	15.50	30.80
INTERNODE LENGTH (below first flower)						
mean	3.7 mm	3.9 mm	4.4 mm	4.0 mm	7.9 mm	4.3 mm
range	1.5–4.5	2–7	2–8	1.5–6	4.5–13	2.5–9.5
std deviation	1.06	1.48	1.79	3.62	2.20	2.30
NO. EMPTY NODES (below first flower)						
mean	13.8	9.8	10.6	13.2	6.4	14.2
range	12–16	7–13	8–14	9–16	3–11	3–11
std deviation	1.26	2.05	1.94	2.33	2.70	3.03
Leaf Characters	'Grasslands Koha'	'Biata'	'Aza'	'Maia'	'German Commercial'	'La Coruna'
LEAF LENGTH						
mean	18.1 cm	19.5 cm	17.9 cm	19.3 cm	18.8 cm	18.3 cm
range	15.5–22	18–21	16–20	16–23	14.5–22.5	15–21
std deviation	1.85	1.20	1.17	2.12	2.49	2.05
NO. LEAFLETS						
mean	37.9	38.1	39.9	38.0	38.4	40.2
range	35–41	35–40	37–42	35–41	33–43	37–43
std deviation	1.85	1.62	1.69	2.24	2.99	2.54

Table of Comparison of Serradella Varieties

Flower Characters	'Grasslands Koha'	'Biata'	'Aza'	'Maia'	'German Commercial'	'La Coruna'
FLOWER COLOUR	pale pink	white	pink	pale pink	pink	pale pink
FLOWERS PER CLUSTER						
mean	5.8	6.0	5.6	5.5	5.3	5.0
range	5-6	5-6	5-6	5-6	3-6	4-6
std deviation	0.47	0.47	0.50	0.53	0.97	0.33
DAYS TO FLOWERING						
mean	133	123	128	133	114	154
range	129-138	116-129	111-134	126-140	105-126	147-158
std deviation	2.69	5.14	4.39	4.33	6.02	4.18

'Grasslands Koha' Field Data, 100 spaced plants, Spring sown

	mean	range	st dev.
DAYS TO FLOWERING	88	73-109	6.00
POD LENGTH	2.48 cm	2.1-3.2	0.27
NO. SEGMENTS	6.59	6-9	0.62
PEDUNCLE LENGTH	6.1 cm	3.7-10.9	1.32

'Grasslands Koha' Field Data, 100 stems from plots, Autumn sown

	mean	range	st dev.
STEM LENGTH (to first flowers)	393.6 cm	139-570	63.9
LEAF LENGTH	137.0 mm	93-172	22.6
LEAF WIDTH	28.0 mm	17-43	4.5
NO. LEAFLET PAIRS	17.6	14-19	2.06
NO. FLOWERS (lowest cluster)	4.8	2-6	0.86

FIELD PEA

(*Pisum sativum*)

Variety: 'Dinkum' Application No. 88/036

Applicant: **Daratech Pty Ltd**, of Melbourne, Victoria.

Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: Semi-leaflessness; semi-dwarf height; an early flowering habit; white flowers; a medium size seed, globular (angular round) in shape, with a translucent white coat.

Varieties used for comparison

'Buckley', 'Maitland', 'Dun', 'Dundale' and 'Wirrega'

Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at the Plant Breeding Centre, Crops Research Institute at Horsham in north-western Victoria in 1987. Plots were sown in a randomised block design with four replications and a plot density of about 80 plants per square metre. Measurements are from 16 plants (four from each plot) chosen at random.

Origin

The breeder is the Grain Legume Breeding Unit of the Victorian Crops Research Institute (VCRI). 'Dinkum' arises from a convergence crossing strategy. It is the single plant progeny selected from an F2 population arising from the cross between two F4 lines, which were both derived from single plant selections obtained in successive F2 and F3 generations. The final cross was made in 1982. The seed parent line results from crosses between accessions of varieties 'Dun', 'PS386' and 'Viktoria Dippes Gelbe' and the pollen parent line from accessions of 'Buckley', 'L58' and 'Viktoria Dippes Gelbe'. Criteria used for selection were environmental tolerance, earliness of flowering and seed type, while combining the traits of semi-leaflessness and semi-dwarf plant type.

Morphology — See comparison tables.

'Dinkum' is an early flowering semi-dwarf, semi-leafless, erect growing field pea variety with medium to large pale-coated seeds with yellow cotyledons. 'Dinkum' has white flowers, as do 'Buckley' and 'Wirrega' but differs from them in being semi-dwarf, semi-leafless, having more and stronger tendrils on petioles and having larger seed. 'Maitland' is also semi-leafless but has purple

flowers, is a taller plant and produces dimpled seed with dun coloured testa, compared with the round but occasionally dimpled seed of 'Dinkum' with its white testa. The pods of 'Dinkum' are slightly curved (concave) and end mostly in an obtuse angled point.

Agronomy

'Dinkum' is intended for cropping in low-medium rainfall (300–450 mm P.A.) areas where its early flowering is an advantage.

Table of Comparison of Pea Varieties

Plant Characters	'Dinkum'	'Buckley'	'Maitland'	'Dun'	'Dundale'	'Wirrega'
HEIGHT — main branch						
mean	53.5 cm	78.8 cm	123.4 cm	117.5 cm	100.3 cm	102.31 cm
range	35–71	50–110	105–140	85–140	60–140	85–110
std deviation	9.20	16.98	13.75	18.78	21.00	11.56
NO. NODES — main branch						
mean	18.3	18.0	24.4	24.1	22.6	21.8
range	16–21	13–23	20–30	18–30	17–30	17–27
std deviation	1.69	3.54	3.28	3.15	3.50	2.72
NO. BASAL BRANCHES						
mean	1.6	2.1	1.7	1.4	1.3	1.6
range	1–3	1–3	1–3	1–3	1–3	1–3
std deviation	0.63	0.72	0.48	0.73	0.58	0.73
GROWTH HABIT	erect	trailing	semi-erect until flowering then trailing	trailing	trailing	trailing
LEAFLETS	absent	present	absent	present	present	present
TENDRILS PER PETIOLE	many large	few small	many large	few small	few small	few small
STIPULE MARGIN	partly emarginate but mostly serrated	emarginate to serrated	emarginate to serrated	emarginate to serrated	emarginate to serrated	emarginate to serrated
ANTHOCYANIN COLOURATION	no	no	yes at sessile end	yes at sessile end	yes at sessile end	No
Flower Characters						
COLOUR						
standard	white	white	purple RHS 75A	purple RHS 75A	purple RHS 75A	white
wings	white	white	red-purple RHS 61A	red-purple RHS 61A	red-purple RHS 61A	white
FLOWERING TIME	early	early	medium-late	medium	early-medium	medium
DAYS TO 50% FLOWERING	98	98	111	110	104	105
FLOWERING DURATION	short	medium	long	long	long	long
FLOWERING DATES (TO 50% FLOWERING)						
Horsham Vic 1987	17/9	17/9	30/9	29/9	23/9	24/9
Rutherglen Vic '86	6/9	10/9	24/9	23/9	6/9	27/9
Cowra NSW '86	12/9	8/9	18/9	22/9	12/9	
York WA '87	10/8	10/8	1/9	27/8	24/8	24/8
NO. NODES TO FIRST FLOWER						
mean	11.3	10.1	16.8	15.6	11.9	13.4
range	6–15	8–13	11–21	10–20	7–16	10–20
std deviation	2.27	1.63	2.91	3.01	2.13	2.16
NO. NODES WITH PODS						
mean	6.4	7.0	6.5	7.8	8.0	7.4
range	3–10	3–11	2–10	5–12	5–11	3–12
std deviation	1.81	2.42	2.31	2.34	1.55	1.90
DAYS TO 50% MATURITY	163	179	-	174	179	-



Above. Pea varieties 'Maitland' (left), 'Dinkum' (centre) and 'Buckley' (right).

Right. Mature seed of 'Dinkum'. *(Photos supplied by applicant).*



Table of Comparison of Pea Varieties

Seeding Characters	'Dinkum'	'Buckley'	'Maitland'	'Dun'	'Dundale'	'Wirrega'
POD LENGTH 48 pods						
mean	67.3 mm	54.9 mm	61.5 mm	58.2 mm	59.7 mm	59.7 mm
range	52-83	37-66	37-86	43-70	32-70	42-70
std deviation	7.68	6.91	8.44	7.74	7.03	6.05
NO. PODS PER PLANT						
mean	11.7	15.7	15.4	13.6	17.9	20.1
range	8-20	4-34	7-25	7-31	9-52	12-34
std deviation	3.30	8.31	5.49	7.45	14.06	7.41
NO. OVULES PER POD						
mean	5.7	6.2	7.2	7.0	7.2	6.5
range	3-20	2-8	3-10	5-9	4-9	4-9
std deviation	1.49	1.22	1.48	0.97	1.30	1.24
TESTA COLOUR	white RHS 159B	white RHS 159B	yellow-green RHS 152C to RHS 164A	yellow-green RHS 152C to RHS 164A	yellow-green RHS 152C to RHS 164A	white RHS 159B
COTYLEDON COLOUR	yellow RHS 17B	yellow RHS 17B	yellow RHS 12A	yellow RHS 16B	yellow RHS 16B	yellow RHS 17C
SEED SHAPE	Angular round to occasional dimple	Spherical	Angular round to flatly compressed parallel to hilum with dimple(s)	Angular round to flatly compressed parallel to hilum with dimple(s)	Angular round to flatly compressed parallel to hilum with dimple(s)	Angular round mostly with dimple(s)
100 GRAIN WEIGHT — 4 samples						
mean	22.3 g	14.9 g	22.5 g	16.8 g	22.4 g	16.5 g
range	22.1-22.6	14.7-15.1	21.9-22.9	16.3-17.1	22.1-22.8	16.4-16.6
std deviation	0.42	0.18	0.42	0.37	0.32	0.13
SIZE	medium	small	medium	small- medium	medium	small- medium
SCREEN SIZE (40 seeds)						
mean	6.4 mm	5.8 mm	6.2 mm	5.6 mm	5.6 mm	5.7 mm
range	5.8-7.1	5.2-6.7	5.2-7.4	4.4-6.5	4.8-6.4	4.9-6.8
std deviation	0.55	0.60	0.52	0.60	0.45	0.39
PROTEIN CONTENT (6.25 × N%, moisture as received)						
1986	21.0	21.6	20.3	22.7	20.5	23.3
1987	22.8	24.6	-	26.1	22.5	-
LYSINE CONTENT (g/16 g N)	6.85	6.95	-	6.81	7.01	-
METHIONONE CONTENT (g/16 g N)	1.05	1.38	-	0.99	1.07	-

OBJECTIONS

Formal objections (S20 of the PVR Act) against any of the above applications can be lodged by a person who:

- a) considers their commercial interests would be affected by a grant of PVR to the applicant; **AND**
- b) considers that the provisions of S26 (Appendix 3 of this Journal) cannot be met.

A fee of \$60 is payable at the time of lodging a formal objection and \$50/hour will be charged if the examination of the objection by the PVR Office takes more than 2 hours.

Comment: Any person not falling into the above category may make comment on the eligibility of any of the above applications for PVR. There is no charge for this.

A person submitting a formal objection or a comment must provide supporting evidence to substantiate the claim. A copy of the submission will also be sent to the applicant and the latter will be asked to show why the objection should not be upheld.

All formal objections and comments relating to the above applications must be lodged with the Registrar by close of business on 30 June 1989.

b) Descriptions to be Finalised

Descriptions for the Journal are being finalised for the following applications. The six month period for comment or formal objection will not begin until the full descriptions are finalised and published in the Journal.

Accepted 7/09/88

GRAPE

(Vitis vinifera)

Applicant: **Daratech Pty. Ltd, of Melbourne, Victoria.** 'Moss Early' Application No. 88/027

Accepted 28/10/88

RAPE

(Brassica napus)

Applicant: **Valley Seeds Pty Ltd, of Alexandra, Victoria.** 'Hobson' Application No. 88/028

APPLE

(Malus)

Applicant: **Hauenstein Pty Ltd, of Switzerland.** 'Rafzubin' Application No. 88/029

GREEN BEAN

(Phaseolus vulgaris)

Applicant: **New world Seeds Pty Ltd, of Dural, NSW.** 'Bronco' Application No. 88/030

2.2 PROVISIONAL PROTECTION

The following varieties have obtained provisional protection under S22 of the *Plant Variety Rights Act 1987* since the last issue of the Journal:

'Moss Early'	APPLICATION NO. 88/027
'Hobson'	APPLICATION NO. 88/028
'Rafzubin'	APPLICATION NO. 88/029
'Bronco'	APPLICATION NO. 88/030
'Firefly'	APPLICATION NO. 88/031
'Fantail Starburst'	APPLICATION No. 88/032
'Fantail Ultraviolet'	APPLICATION NO. 88/033
'Fantail Flamingo'	APPLICATION NO. 00/034
'Grasslands Koha'	APPLICATION NO. 00/035
'Dinkum'	APPLICATION NO. 88/036

PROPOSED SCHEDULE FOR INCLUDING GENERA/SPECIES IN THE PLANT VARIETY RIGHTS REGULATIONS

PLANT GROUP	APRIL 88	JULY 88	JAN 89	JULY 89	MARCH 90
STONE FRUIT		Prunus	All Stone Fruit		
CITRUS		All Citrus			
OTHER FRUIT	Malus (apple)	Fragaria (strawberry) Vitis (grape) Carica (paw paw) Rubus (raspberry) Persea americana (avocado)	Pyrus (pear) Actinidia (kiwifruit)	All fruit	
VEGETABLES	Phaseolus vulgaris (bean)	Solanum tuberosum (potato) Lycopersicon (tomato) Lactuca sativa (lettuce) Pisum (pea)	Allium cepa (onion) Daucus carota (carrot) Brassica oleracea (cabbage, cauliflower etc)	All vegetables	
NUTS	Macadamia	Prunus amygdalus (almond)	Juglans (walnut)	All nuts	
HERBAGE AND TURF GRASS	Phalaris	Lolium (ryegrass) Agrostis (bent) Festuca (tall fescue) Cynodon (bermuda grass) Zoysia Stenotaphrum	Dactylus (cocksfoot) Bromus Lotus Paspalum Arachis Bothriochloa	All herbage and turf grasses	
OILSEEDS	Brassica sp (oilseeds) (rape, mustard etc)	Glycine max (soybean) Helianthus annuus (sunflower)	Sesamum indicum (sesame) Carthamus tinctorius (safflower) Linum usitatissimum (linseed)	All oilseeds	
PASTURE AND GRAIN LEGUMES		Trifolium (clover) Medicago Ornithopus (serradella) Stylosanthes	Lupinus Desmanthus Vigna (mungbean) Cicer arietinum (chickpea) Indigofera	All pasture and grain legumes	
GRAINS		Setaria Avena (oats) Panicum Pisum (pea) Zea mays (corn)	Hordeum (barley) Pennisetum (pearl millet) Sorghum		All grains
AUST. NATIVE ORNAMENTALS	Anigozanthos (Kangaroo paw)	Grevillea Chamelaucium (Geraldton wax) Lechenaultia Melaleuca Decaspermum Artanema	Macropidia (Black Kangaroo Paw) Piper Callistemon Thryptomene Telopea Dryandra	Boronia Banksia Verticordia Darwinia Pimelea	All native ornamentals
OTHER ORNAMENTALS	Rosa (Rose)	Orchids (all genera) Dianthus (carnation) Alstroemeria Schlumbergera (Zygocactus) Lilium (Lily) Metrosideros carminea Freesia Rhododendron Gerbera	Rhipsalis Kalanchoe Euphorbia (Poinsettia) Chrysanthemum Zantedeschia Cuphea Limonium Cyphomandra Streptocarpus Impatiens Cyclamen Begonia Achimenes Choysia Agapanthus	Hemerocallis Bougainvillea Ilex	All ornamentals
FORESTRY		Eucalyptus	Pinus Acacia Casuarina		All forestry
OTHER	Gossypium (cotton)		Duboisia	Humulus lupulus	All species
PROPOSED ADDITIONS			Carpobrotus		

SECTIONS 16 AND 17 OF THE PVR ACT

Form of application

16. An application for plant variety rights in respect of a plant variety shall be in writing in a form approved by the Secretary, shall be lodged with the Secretary in the prescribed manner and shall contain —

- (a) the name of the person making the application;
- (b) where the applicant is the breeder of the variety, a statement that the applicant is the breeder of the variety;
- (c) where the applicant is not the breeder of the variety, the name and address of the breeder from whom the applicant derived the right to make an application and particulars of all relevant assignments and transmissions of the right to make the relevant applications;
- (d) a description, or a description and photograph, of a plant of the variety sufficient to identify plants of that variety;
- (e) particulars of the characteristics that distinguish the variety from other varieties;
- (f) particulars of the manner in which the variety was originated;
- (g) the name of the variety;
- (h) particulars of any application for, or approval of a grant of, rights of any kind in respect of the variety in any other country;
- (i) particulars of any tests carried out to establish that the variety is homogeneous and stable (including particulars of any cycle of reproduction or multiplication for the purposes of paragraph 3(2)(b));
- (k) in the case of a plant variety originated outside Australia, particulars of any test growing of that variety carried out for the purpose of determining whether the variety will, if grown in Australia, have a particular characteristic;
- (m) an address in Australia for the service of documents on the applicant for the purposes of this Act; and
- (n) such other particulars (if any) as are prescribed.

Names of new plant varieties

17.(1) The name of a new plant variety shall consist of a word or words (which may be an invented word or words) with or without the addition of —

- (a) a letter or letters not constituting a word;
- (b) a figure or figures; or
- (c) both a letter or letters not constituting a word and a figure or figures.

2. A new plant variety shall not have —

- (a) a name the use of which would be likely to deceive or cause confusion, including a name that is the same as, or is likely to be mistaken for, the name of another plant variety;

- (b) a name the use of which would be contrary to law;
- (c) a name that comprises or contains scandalous or offensive matter; or
- (d) a name, or name of a kind, that is, at the time when the application is made, prohibited by the regulations.

(3) The name of a new plant variety in respect of which an application is made shall comply with any recommendations of the International Code of Nomenclature for Cultivated Plants, as in force when the application is made, formulated and adopted by the International Commission for Nomenclature of Cultivated Plants of the International Union of Biological Sciences that are accepted by Australia.

(4) The name of a new plant variety in respect of which an application is made shall not consist of, or include —

- (a) the name of a natural person living at the time of the application, other than a person who has given written consent to the name of the plant variety;
- (b) the name of a natural person who died within the period of 10 years immediately preceding the application, other than a person who has given, or whose legal personal representative has given, written consent to the name of the plant variety; or
- (c) the name of a corporation, organisation or institution, other than a corporation, organisation or institution that has given its written consent to the name of the plant variety.

SECTION 26 OF THE PVR ACT

Grant of plant variety rights

26.(1) Subject to this section, where an application for plant variety rights in respect of a plant variety is accepted —

- (a) if the Secretary is satisfied that —
 - (i) there is such a plant variety;
 - (ii) the plant variety is a new plant variety;
 - (iii) the applicant is entitled to make the application;
 - (iv) the grant of those rights to the applicant is not prohibited by this Act;
 - (v) those rights have not been granted to another person;
 - (vi) there has been no earlier application for those rights that has not been withdrawn or otherwise disposed of;
 - (vii) the name of the variety would comply with section 17; and
 - (viii) all fees payable under this Act in relation to the application and the grant have been paid,the Secretary shall grant those rights to the applicant; or
- (b) if the Secretary is not so satisfied — the Secretary shall refuse to grant those rights to the applicant.

(2) The Secretary shall not grant, or refuse to grant, plant variety rights in respect of a plant variety unless a period of at least 6 months has elapsed since the giving of public notice of the

application, or, if the application has been varied in pursuance of a request under sub-section 19(1) in a manner that the Secretary considers to be significant, a period of 6 months has elapsed since the giving of public notice of particulars of the variation, or of the last such variation, as the case requires.

(3) The Secretary shall not refuse to grant plant variety rights unless the Secretary has given the applicant for the rights a reasonable opportunity to make a written submission to the Secretary in relation to the application.

(4) Where an objection to the grant of plant variety rights has been lodged under section 20, the Secretary shall not grant the rights unless the Secretary has given the person who lodged the objection a reasonable opportunity to make a written submission to the Secretary in relation to the objection.

(5) Plant variety rights shall be granted to a person by the issue to that person by the Secretary of a certificate, signed by the Secretary or by the Registrar, in a form approved by the Secretary and containing such particulars of the plant variety to which the rights relate as the Secretary considers appropriate.

(6) Where plant variety rights are granted to persons who made a joint application for those rights, those rights shall be granted to those persons jointly.

(7) Where the Secretary refuses to grant plant variety rights in respect of a plant variety, the Secretary shall, within 30 days after refusing, give written notice of the refusal to the applicant for the rights setting out the grounds for the refusal.

SECTIONS 12 AND 38 OF THE PVR ACT

Plant variety rights

12.(1) Plant variety rights, in respect of a new plant variety, are —

- (a) the exclusive rights to sell, including the right to license other persons to sell, plants of that variety;
- (b) the exclusive right to sell, including the right to license other persons to sell, reproductive material of plants of that variety;
- (c) the exclusive right to produce, including the right to license other persons to produce, plants of that variety for sale; and
- (d) the exclusive right to produce, including the right to license other persons to produce, reproductive material of plants of that variety for sale.

(2) Plant variety rights in respect of a plant variety are subject to conditions imposed in respect of those rights by section 33 or under section 34.

Plant variety rights not to restrict sales for food, fibre, fuel, &c.

38.(1) Notwithstanding that plant variety rights subsist in respect of a plant variety, any person may —

- (a) propagate, grow and use plants of that variety for purposes other than commercial purposes;
- (b) sell plants of that variety for use as food or for another use that does not involve the growing of the plants or the production of plants of that variety;
- (c) sell reproductive material of plants of that variety for use as food or for another use that does not involve the production of plants of that variety;
- (d) sell with a farm or other place at which plants of that variety are grown any plants or reproductive material of plants of that variety at that place; or
- (e) use, and do anything necessary or desirable for the purpose of using, plants or reproductive material of plants of the variety as an initial source of variation for the purpose of originating another new plant variety except where the person makes repeated use of plants or reproductive material of plants of the first-mentioned variety for the commercial production of the other variety.

(3) The right of a person under paragraph (1)(c) to sell reproductive material of plants of a plant

variety in respect of which plant variety rights subsist include —

- (a) the right of the person to use plants, or reproductive material of plants, of that variety purchased or otherwise acquired by the person without any infringement of those plant variety rights to —
 - (i) produce reproductive material of plants for the sale; or
 - (ii) produce plants, or reproductive material of plants, from which reproductive material of plants for the sale may be derived; and
- (b) the right of the person to use plants, or reproductive material of plants derived by the person from plants, or reproductive

material of plants, of that variety, purchased or otherwise acquired by the person without any infringement of those plant variety rights to —

- (i) produce reproductive material of plants for the sale; or
- (ii) produce plants, or reproductive material of plants, from which reproductive material of plants for the sale may be derived.

(4) Without limiting the generality of paragraph (1)(c), for the purposes of that paragraph, the use of reproductive material of a plant by way of allowing it to sprout and then eating it, or using it in the preparation of food, before it has developed further shall not be taken to be a use that involves the production of a plant.

PLANT VARIETY RIGHTS ADVISORY COMMITTEE (PVRAC)

(Members of the PVRAC were appointed in accordance with S45 of the *Plant Variety Rights Act 1987*).

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Representative with appropriate qualifications and experience.

Dr John Leslie
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Representative with appropriate qualifications and experience.



Certificate No.

Application No.

*This is to certify that
Plant Variety Rights
have been granted under section 26(1)
of the Plant Variety Rights Act 1987 to*

for the variety:

of

Genus

species

Expiry date of this right

granted this day of

19

signed

Registrar of Plant Variety Rights



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Cat. No. 88 1900 8