



# Plant Varieties Journal

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# REGISTRAR'S REMARKS



The first half of 1989 has seen a continuing increase in the number of PVR applications. The quality of applications is also improving as applicants gain a better understanding of the type of data needed to define their varieties for PVR.

There is close interaction between the PVR Office and applicants to ensure that the quality of applications continues to improve and that a high standard, cost effective PVR scheme is in operation. This level of involvement is stretching the resources (3 people) of the Office considerably but we believe it is an essential element in the development of PVR and continue to encourage applicants to contact us as early as possible to ensure that the comparative growing trials will provide the data needed.

The value of close contact with industry groups has been highlighted in recent months by the development of new rose application forms, based on proposals from the rose introducers group, RIAUS. Several meetings with this group has resulted in a more appropriate form both in terms of characteristics measured and design.

I have also met with several other industry groups in the last months at Conferences and seminars and each time I find the feedback invaluable in assisting with the implementation of PVR.

**Kathryn Adams**  
Registrar of Plant Variety Rights

**PLANT VARIETY RIGHTS OFFICE**  
GPO BOX 858  
CANBERRA ACT 2601

**CLOSING DATE FOR SEPTEMBER ISSUE: 24 JULY 1989**

CONTACT NUMBERS: REGISTRAR  
EXAMINER  
ADMINISTRATION/GENERAL  
FACSIMILE

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062 724228  
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# PART 1 — ITEMS OF GENERAL INTEREST

## IMPLEMENTATION OF PVR — PROGRESS

A total of 63 applications had been accepted by 15 May 1989. The applications are for a range of plant species and Australian and overseas applicants.

Four rights have been granted since the last issue of the Journal and are listed in Part 2. They include a schlumbergera, a rose and two grasses. It is anticipated that several more rights will be granted in July.

## 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.

As noted in PVJ 2:1, a large number of new genera and species will be included in the Regulations in July 1989. From that date applications will be accepted for the genera and species of plants listed in Appendix 1 under the columns headed "April 1988, July 1988, January 1989 and July 1989 (plant groups are not listed in the regulations and the latin name takes precedence over the English name).

## PROPAGATION — apomictic species

The amendment to the Act to give the grantee the exclusive right to asexually propagate, or license others to asexually propagate, a protected variety for the commercial production of fruit, cut flowers or other products is progressing.

The amendment will only apply to genera and species prescribed for the purpose and the grantee will be required to license anyone to asexually propagate the variety if they meet reasonable licence conditions.

Comment was sought on genera and species which should and should not be covered by the amendment. No specific exclusions have been sought and all genera and species will be covered by the provision as they become eligible for PVR unless there are specific reasons for their exclusion (**NOTE** this amendment applies to asexual propagation and does not include propagation from seed).

Some consideration is being given to the need to exclude apomictic species from the provisions of the amendment. These are generally reproduced from seed but without fertilisation (ie asexually). As some grass species reproduce in this way **comment** is sought (by **30 September 1989**) on whether or not such species should be excluded from the provisions of the amendment.

Further information or clarification relating to the proposed amendment may be obtained from the Registrar on 062 716472.

## COMPARATIVE GROWING TRIALS — inclusion of varieties under examination

For a new variety to be eligible for PVR it must be different from other known varieties. The PVR Office requires applicants to demonstrate this distinctness by growing the new variety with the closest available varieties in comparative trials.

Potential applicants should ensure that they are aware of any new varieties currently under examination by the PVR Office, as these may need to be included in the comparative trials.

Applicants should also note that they may be required to give material of new varieties to other applicants for comparative trials. In most cases such material would be covered by provisional protection.

## COMPARATIVE TRIALS — Fruit Varieties

Some applicants have sought advice on methods to reduce the long lead time for trials on fruit trees. Experience has shown that this can be reduced considerably by grafting the new varieties onto mature rootstocks (in such cases all trial varieties should be on the same age stocks) or onto mature trees (several varieties can be grafted to the one tree).

If mature fruit characteristics are not of prime importance, measurements may be taken at an earlier stage. In addition laboratory assays can be used to demonstrate differences, although some field data will also be required.

## COMPARATIVE GROWING TRIALS — overseas test results

Applicants who are submitting overseas test data should include in their trials comparisons with similar varieties commonly available in Australia.

Full descriptions in the Journal will only be published if such comparative data is available. Otherwise publication will be delayed until Australian trials are complete.

If the applicant is claiming equivalence of overseas tests under S23, Australian trials may still be required if the necessary comparative data is not available.

## PROVISIONAL PROTECTION — sale of the variety

In previous issues of the Journal the provision of the Act (S14) preventing sale of the variety before

application has been considered. Some applicants are concerned that they are not able to evaluate the quality and acceptance of their product in the market before applying to PVR.

The purpose of this provision is to ensure that the variety is "new". PVR gives the breeder a right over this variety for a period of 20 years. It is therefore reasonable to expect that the breeder should be prepared to take a degree of risk in return for such rights.

However the risks can be minimised by applying for PVR and then carrying out further evaluations. Once an application is accepted the breeder is deemed to be the holder of the rights and the variety has provisional protection (Section 22).

At this stage the breeder can sell the variety for the purposes of bulking up or scientific evaluation without losing provisional protection. Scientific evaluation can take many forms but must relate to a defined sample size, determination of specified characteristics, and be of limited duration.

Breeders may **sell** the variety for other purposes **once the application has been accepted**. By doing so they lose provisional protection **but the examination for PVR continues normally**.

There is also a provision in the application form to delay examination. If this option is **nominated at the time of application**, the application may be withdrawn by a given date and no examination fee will be charged (ie the application fee will be the only charge). This delayed examination option is available to applicants who wish to do further evaluation of the variety before the description is published.

## PVR TRIALS — Register of Names

The Plant Variety Rights Office is compiling a register of names of organisations who undertake PVR trials for other people. This list will be given to anyone who asks and no preference will be given to any organisation.

Organisations interested in being on the register should write to the Registrar. Names currently on the Register are listed in Appendix 6. The PVR Office does not take any responsibility for the actions of these organisations but provides the information for the benefit of applicants.

## UPOV

As noted in the last issues of Plant Varieties Journal, UPOV is proposing to revise 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.

Mr Barry Greengrass, Vice Secretary-General of UPOV will be in Australia in July. A meeting has been arranged with industry, government and

consumer organisations to discuss the changes and general questions of the operation of intellectual property rights for plants.

A summary of the meeting will be given in the next issue.

## FEES

A new schedule of fees, applicable from 1 July 1989, is given at Appendix 4. It should be noted that Examination fees will be payable 3 months after lodging of the application. If the delayed examination option is chosen **at the time of application**, the examination fee will be payable 3 months from the date nominated in the letter of acceptance of the application.

# PART 2 — MATTERS FOR PUBLIC NOTICE

## PVR GRANTED

Plant Variety Rights have been granted under Section 26 of the Plant Variety Rights Act 1987, and an entry has been made in the Register, for the following varieties:

1. **'Madame Butterfly'** (Application No 88/003)  
Schlumbergera x reginae

**Grantee:** A D Savio, Bayswater, Victoria

**Certificate No.3**

**Expiry Date:** 25th July 2008

Description published in Plant Varieties Journal Vol 1 No.3 of September, 1988

2. **'Splenda'** (Application No 88/009)  
Setaria sphacelata

**Grantee:** CSIRO Division of Tropical Crops & Pastures, St Lucia, Queensland.

**Certificate No:4**

**Expiry Date:** 6th August 2008

Description published in Plant Varieties Journal Vol 1 No.3 of September, 1988

3. **'Yatsyn 1'** (Application No 88/004)  
Lolium perenne

**Grantee:** New Zealand Agriseeds Ltd, c/o Primac Association Ltd of Brisbane, Queensland.

**Certificate No:5**

**Expiry Date:** 25th July 2008

Description published in Plant Varieties Journal Vol 1 No.3 of September, 1988

4. **'Young at Heart'** (Application No 88/003)  
Rosa hybrida

**Grantee:** Swane Bros Pty Ltd of Dural, New South Wales.

**Certificate No:6**

**Expiry Date:** 10th June 2008

Description published in Plant Varieties Journal Vol 1 No.2 of June, 1988

## APPLICATIONS ACCEPTED

The PVR applications listed below have been accepted under S18 of the *Plant Variety Rights Act 1987*.

### a) Descriptions finalised

## SOYBEAN (*Glycine max*)

Variety: **'A5939'** Application No. 88/011

Applicant: **Asgrow Seed Company** of Michigan, USA

Australian Agent: **Annand Robinson & Co.** of Toowoomba Qld.

### Diagnosis

This variety is distinct from any other known variety in having: a determinate plant growth habit; purple flowers, brown pubescence; a purple hypocotyl; tan pods; a spherical seed with a yellow coat, shiny lustre and a black hilum; and immunity to race 1 of *Phytophthora* root rot.

### Varieties used for comparison

'A6520', 'A5474', 'Manark', 'Bragg', 'Forrest', 'Triton', Nautilus', 'Bossier', 'Nessen', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' being other varieties with determinate growth.

### Comparative Growing Trials

All characteristics and comparisons are from a comparative growing trial planted at Hermitage Research Station, southern Queensland in December, 1989. Plots consisted of 5 metre rows 70 cm apart, planted at a density of 20 per metre with 2 replicates per variety. Measurements in tables are of 20 plants chosen at random.

*Phytophthora* root rot resistance was determined by inoculation, with reference fungal isolates, of seedling roots to determine field resistance and hypocotyl to determine immunity, conducted at Department of Primary Industries Pathology Laboratory, Toowoomba, Queensland. Procedures are as outlined by Irwin & Langdon in *Aust. J. Agric. Res.*, 1982, 33 pp 33-39 (root techniques) and in the application form (hypocotyl techniques).

### Origin

'A5939' was bred by the applicant in Iowa, USA and is covered there by Plant Variety Protection.

'A5939' arises from a controlled cross between two identified breeder's lines and subsequent selection at F2 and F5 as well as rogueing in other generations for conformity of type. Parentage included plants of several varieties including 'Tracy' and 'Forrest'. The same cross and selections also produced the variety 'A5474' (application No. 88/012). The main criterion for selection was resistance to Soybean Cyst Nematode (*Heterodera glycines*) and, at F2, 13 plants were selected from 800 screened for this pest.

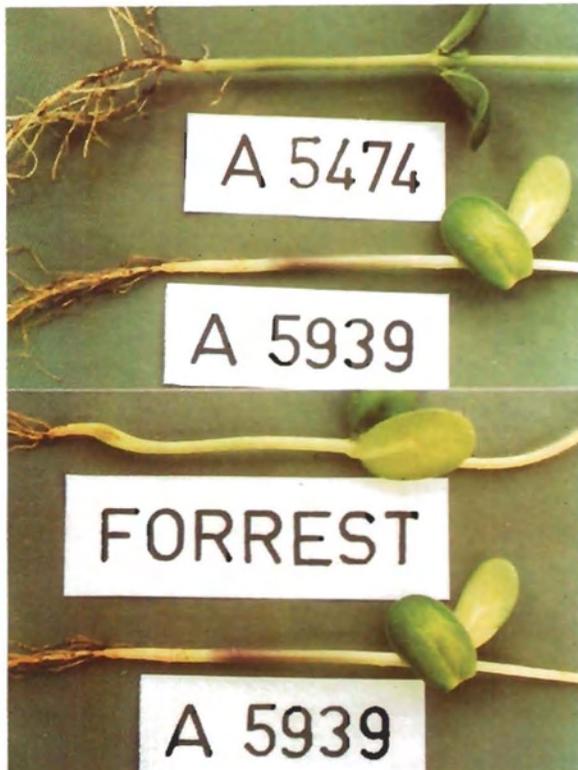
### Morphology — See comparison tables.

'A5939' is distinct from 'A6520' in mature plants of 'A5939' being taller and maturing later (8 days from trials). 'A5939' is distinct from 'Bossier' in 'A5939' being immune to race 1 of *Phytophthora* whereas 'Bossier' is susceptible and flowers later (7 days from trials). 'A5939' is distinct from 'Nessen' in 'A5939' having brown pubescence and seed with shiny coat and black hilum whereas 'Nessen' has grey pubescence seed with dull coat and grey hilum.

'A5939' is distinct from 'A5474', 'Manark', 'Bragg', 'Forrest', 'Triton', 'Nautilus', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' in having purple flowers and purple hypocotyl compared to their white flowers and green hypocotyl.

**Agronomy**

'A5939' has immunity to race 1 of *Phytophthora* root rot and is intended for the sub-tropical soybean growing districts of Australia.



Seedlings of soybean varieties showing green hypocotyl of 'A5474' and purple hypocotyl of 'A5939'. (Photo supplied by applicant)

**SOYBEAN**  
(*Glycine max*)

Variety: 'A5474' Application No. 88/012

Applicant: **Asgrow Seed Company** of Michigan, USA

Australian Agent: **Annand Robinson & Co**, of Toowoomba Qld.

**Diagnosis**

This variety is distinct from any other known variety in having: a determinate plant growth habit; white flowers; brown pubescence; a green hypocotyl; brown pods; a spherical seed with a yellow coat, shiny lustre and a black hilum; and immunity to race 1 *Phytophthora* root rot.

**Varieties used for comparison**

'A6520', 'A5939', 'Manark', 'Bragg', 'Forrest', 'Triton', 'Nautilus', 'Bossier', 'Nessen', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' being other varieties with determinate growth.

**Comparative Growing Trials**

All characteristics and comparisons are from a comparative growing trial planted at Hermitage Research Station, southern Queensland in December, 1989. Plots consisted of 5 metre rows 70 cm apart, planted at a density of 20 per metre with 2 replicates per variety. Measurements in tables are of 20 plants chosen at random.

*Phytophthora* root rot resistance was determined by inoculation, with reference fungal isolates, of seedling roots to determine field resistance and hypocotyl to determine immunity, conducted at Department of Primary Industries Pathology Laboratory, Toowoomba, Queensland. Procedures are as outlined by Irwin & Langdon in *Aust. J. Agric. Res.*, 1982, 33 pp 33-39 (root techniques) and in the application form (hypocotyl techniques).



Mature seed of soybean varieties showing spherical shape, black hilum and shiny coat lustre of 'A5474'. (Photo supplied by applicant)

### Origin

'A5474' was bred by the applicant in Iowa, USA and is covered there by Plant Variety Protection.

'A5474' arises from a controlled cross between two identified breeder's lines and subsequent selection at F2 and F5 as well as roguing in other generations for conformity of type. Parentage included plants of several varieties including 'Tracy' and 'Forrest'. The same cross and selections also produced the variety 'A5939' (application No. 88/011). The main criterion for selection was resistance to Soybean Cyst Nematode (*Heterodera glycines*) and, at F2, 13 plants were selected from 800 screened for this pest.

**Morphology** — See comparison tables.

'A5474' differs from 'Davis', 'Centaur', 'Dragon' and 'Bragg' in 'A5474' having brown pods with brown pubescence and shiny seed with a black hilum. 'A5474' differs from 'Forrest', 'Nautilus', 'Manark' and 'Canapolis' in 'A5474' having brown pods. It differs from 'A5939', 'A6520', 'Bossier' and 'Nessen' in having white flowers and green hypocotyl instead of the purple of those varieties. It differs from 'Triton' in 'A5474' having a shiny seed coat and immunity to race 1 of *Phytophthora* root rot.

### Agronomy

'A5474' has immunity to race 1 of *Phytophthora* root rot and is intended for the sub-tropical soybean growing districts of Australia.

## SOYBEAN (*Glycine max*)

Variety: 'Manark' Application No. 88/037

Applicant: Queensland Department of Primary Industries of Brisbane, Queensland

### Diagnosis

This variety is distinct from any other known variety in having: a determinate plant growth habit; a medium-tall mature plant height; white flowers, grey pubescence; a green hypocotyl; tan pods; a spherical seed with a yellow coat, shiny lustre and a buff-coloured hilum.

### Varieties used for comparison

'A6520', 'A5939', 'A5474', 'Bragg', 'Forrest', 'Triton', 'Nautilus', 'Bossier', 'Nessen', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' being other varieties with determinate growth.

### Comparative Growing Trials

All characteristics and comparisons are from a comparative growing trial planted at Hermitage Research Station, southern Queensland in December, 1989. Plots consisted of 5 metre rows 70 cm apart, planted at a density of 20 per metre with 2 replicates per variety. Measurements in tables are of 20 plants chosen at random.

*Phytophthora* root rot resistance was determined by inoculation, with reference fungal isolates, of seedling roots to determine field resistance and hypocotyl to determine immunity, conducted at Department of Primary Industries Pathology Laboratory, Toowoomba, Queensland. Procedures are as outlined by Irwin & Langdon in *Aust. J. Agric. Res.*, 1982, 33 pp 33-39 (root techniques) and in the application form (hypocotyl techniques).

### Origin

The breeder is J L Rose of Department of Primary Industries, Queensland.

'Manark' arises from the controlled pollination of 'Davis' by 'Bragg' in 1972. The progeny of the cross was advanced through to the F5 generation by single seed descent. F5 lines were evaluated for yield characteristics and resistance to *Phytophthora* root rot. One such line was selected and bulked to form 'Manark'.

**Morphology** — See comparison tables.

'Manark' differs from 'Davis' in having a shiny lustered seed coat and non-shattering mature pods compared to the dull surfaced seed coat and shattering pods of 'Davis'.

'Manark' flowers slightly later and grows taller than 'Centaur'. 'Manark' seed is spherical compared to the slightly flattened spherical seed of 'Centaur'. 'Manark' flowers earlier than 'Dragon' and is resistant to *Phytophthora* root compared with 'Dragon' which is susceptible.

'Manark' differs from 'A5474', 'Forrest', 'Triton', 'Nautilus' and 'Canapolis' in 'Manark' having grey pubescence whereas those varieties have brown pubescence.

'Manark' differs from 'Bragg', in having a buff hilum whereas 'Bragg' has a black hilum.

'Manark' differs from 'A6520', 'A5939', 'Bossier' and 'Nessen' in 'Manark' having white flowers and a green hypocotyl whereas those varieties have purple flowers and hypocotyl.

### Agronomy

'Manark' has field resistance to *Phytophthora* root rot and is adapted to the sub-tropical soybean growing districts of Australia.



Mature seed of soybean varieties showing spherical shape, black hilum and shiny coat lustre of 'A5474'. (Photo supplied by applicant)

## SOYBEAN (*Glycine max*)



Soybean variety 'A6520' showing purple flower and brown pubescence. (Photo supplied by applicant)

Variety: 'A6520' Application No. 89/025

Applicant: **Asgrow Seed Company** of Michigan, USA

Australian Agent: **Annand Robinson & Co.** of Toowoomba Qld.

### Diagnosis

This variety is distinct from any other known variety in having: a determinate plant growth habit; purple flowers, brown pubescence; a purple hypocotyl; tan pods; a flattened spherical seed with a yellow coat, shiny lustre and a black hilum; and immunity to *Phytophthora* root rot.

### Varieties used for comparison

'A5474', 'A5939', 'Manark', 'Bragg', 'Forrest', 'Triton', 'Nautilus', 'Bossier', 'Nessen', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' being other varieties with determinate growth.

### Comparative Growing Trials

All characteristics and comparisons are from a comparative growing trial planted at Hermitage Research Station, southern Queensland in December, 1989. Plots consisted of 5 metre rows 70 cm apart, planted at a density of 20 per metre with 2 replicates per variety. Measurements in tables are of 20 plants chosen at random.

*Phytophthora* root rot resistance was determined by inoculation, with reference fungal isolates, of seedling roots to determine field resistance and hypocotyl to determine immunity, conducted at Department of Primary Industries Pathology Laboratory, Toowoomba, Queensland. Procedures are as outlined by Irwin & Langdon in *Aust. J. Agric. Res.*, 1982, 33 pp 33–39 (root techniques) and in the application form (hypocotyl techniques).

### Origin

'A6520' was bred by the applicant in Iowa, USA and is covered there by Plant Variety Protection.

'A6520' arises from a controlled cross between two identified breeder's lines and subsequent selection at F2 and F4 with resistance to race 4 of Soybean Cyst Nematode (*Heterodera glycines*) as the main criterion.

Further selection at F5 and F6 was made for leaf colour, maturity and resistance to race 7 *Phytophthora* root rot. Parentage included plants of several varieties including 'Tracy' and 'Forrest'.

### Morphology — See comparison tables.

'A6520' is distinct from 'A5939' in mature plants of 'A6520' being shorter and pods maturing earlier (8 days from trials). 'A6520' is distinct from 'Bossier' in 'A6520' being immune to race 1 of *Phytophthora* whereas 'Bossier' is susceptible and flowers later (15 days from trials). 'A6520' is distinct from 'Nessen' in 'A6520' having brown pubescence and seed with shiny coat and black hilum whereas 'Nessen' has grey pubescence seed with dull coat and grey hilum.

'A6520' is distinct from 'A5474', 'Manark', 'Bragg', 'Forrest', 'Triton', 'Nautilus', 'Canapolis', 'Davis', 'Centaur' and 'Dragon' in having purple flowers and purple hypocotyl compared to their white flowers and green hypocotyl.

### Agronomy

'A6520' has immunity to race 1 of *Phytophthora* root rot and is intended for the sub-tropical soybean growing districts of Australia.

**TABLE OF COMPARISON FOR SOYBEAN VARIETIES**

		'Manark'	'Davis'	'Centaur'	'Dragon'
DAYS TO FLOWERING	Mean	63	67	57	73
	Range	59-67	61-69	55-60	68-81
	Std deviation	2.5	2.1	1.7	3.8
MATURE PLANT HEIGHT	Mean	88	92	70	91
	Range	74-106	72-106	62-82	78-102
	Std deviation	8.4	9.1	7.1	7.3
HYPOCOTYL COLOUR		green	green	green	green
FLOWER COLOUR		white	white	white	white
LEAF SHAPE		ovoid	ovoid	ovoid	ovoid
PUBESCENCE COLOUR		grey	grey	grey	grey
POD COLOUR		tan	tan	tan	tan
UNIFOLIATE LEAF — LENGTH	Mean	42.2 mm	43.5 mm	45.0 mm	45.0 mm
	Range	35-49	38-48	39-49	40-51
	Std deviation	3.12	2.67	2.98	3.50
— WIDTH	Mean	39.7 mm	38.8 mm	36.9 mm	41.6 mm
	Range	33-44	35-46	33-41	35-48
	Std deviation	2.94	2.92	2.25	3.23
— PETIOLE	Mean	17.4 mm	13.8 mm	16.3 mm	13.6 mm
	Range	11-22	8-19	12-23	10-18
	Std deviation	2.72	3.23	2.65	1.67
TERMINAL LEAFLET — LENGTH	Mean	121 mm	109 mm	124 mm	107 mm
	Range	105-144	98-124	112-137	85-135
	Std deviation	9.4	6.1	6.8	12.5
— WIDTH	Mean	70 mm	67 mm	71 mm	65 mm
	Range	58-83	60-76	61-84	52-79
	Std deviation	6.6	4.2	5.5	8.0
PHYTOPHTHORA ROOT ROT		f-resistant	f-resistant	f-resistant	susceptible
SEED SHAPE		spherical	spherical flattened	spherical flattened	spherical
SEED COAT LUSTRE		shiny	dull	dull	shiny
SEED COAT COLOUR		yellow	yellow	yellow	yellow
COTYLEDON COLOUR		yellow	yellow	yellow	yellow
HILUM COLOUR		buff	buff	buff	buff
100 SEED WEIGHT		17.6 g	17.3 g	18.9 g	18.4 g
OIL CONTENT		19.8 %	20.8 %	20.5 %	20.2 %
PROTEIN CONTENT		40.1 %	39.8 %	39.9 %	40.8 %

**TABLE OF COMPARISON FOR SOYBEAN VARIETIES**

		'Bragg'	'Forrest'	'Triton'	'Nautilus'
DAYS TO FLOWERING	Mean	58	56	62	58
	Range	55-62	52-62	59-65	54-60
	Std deviation	2.0	2.2	2.0	1.7
MATURE PLANT HEIGHT	Mean	86	68	70	63
	Range	66-118	54-84	54-86	54-76
	Std deviation	18.5	8.1	9.8	6.5
HYPOCOTYL COLOUR		green	green	green	green
FLOWER COLOUR		white	white	white	white
LEAF SHAPE		ovoid	ovoid	ovoid	ovoid
PUBESCENCE COLOUR		grey	brown	brown	brown
POD COLOUR		tan	tan	brown	tan
UNIFOLIATE LEAF — LENGTH	Mean	42.8 mm	42.0 mm	38.2 mm	42.1 mm
	Range	38-52	37-48	28-45	36-48
	Std deviation	3.43	2.27	4.48	3.15
— WIDTH	Mean	40.2 mm	34.2 mm	36.0 mm	37.1 mm
	Range	35-45	28-40	30-42	32-42
	Std deviation	2.46	3.18	3.87	3.17
— PETIOLE	Mean	12.8 mm	12.7 mm	16.7 mm	8.2 mm
	Range	7-19	8-16	11-22	5-14
	Std deviation	3.96	2.44	2.46	2.46
TERMINAL LEAFLET — LENGTH	Mean	115 mm	112 mm	111 mm	110 mm
	Range	90-133	87-138	93-124	86-129
	Std deviation	9.8	12.6	7.7	12.9
— WIDTH	Mean	69 mm	63 mm	61 mm	72 mm
	Range	61-88	53-83	56-68	58-95
	Std deviation	6.8	7.7	3.6	9.8
PHYTOPHTHORA ROOT ROT		susceptible	susceptible	resistant	susceptible
SEED SHAPE		spherical	spherical	spherical	spherical
SEED COAT LUSTRE		shiny	shiny	dull	shiny
SEED COAT COLOUR		yellow	yellow	yellow	yellow
COTYLEDON COLOUR		yellow	yellow	yellow	yellow
HILUM COLOUR		black	black	black	brown
100 SEED WEIGHT		18.7 g	16.3 g	16.5 g	—
OIL CONTENT		20.4 %	20.5 %	20.7 %	—
PROTEIN CONTENT		40.6 %	39.0 %	39.4 %	—

**TABLE OF COMPARISON FOR SOYBEAN VARIETIES**

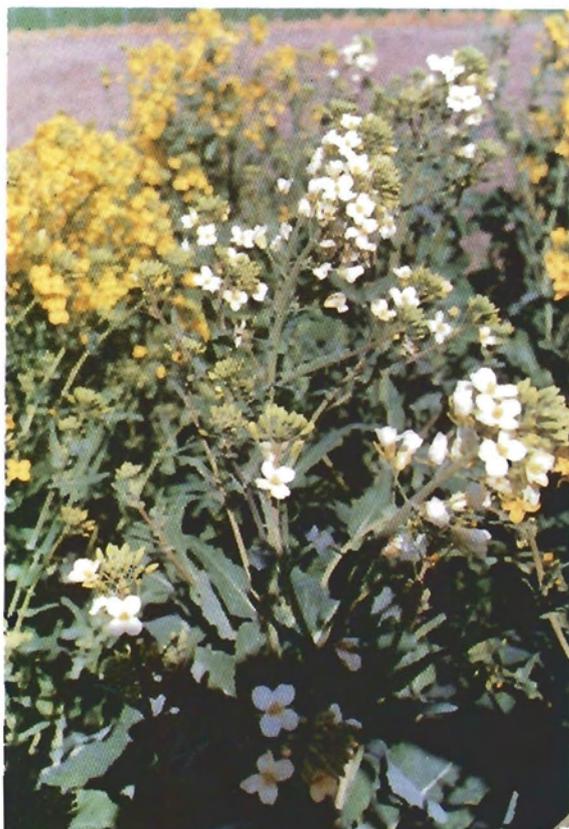
		'A6520'	'A5939'	'A5474'
DAYS TO FLOWERING	Mean	55	56	56
	Range	45-60	47-59	46-60
	Std deviation	4.9	2.5	4.0
MATURE PLANT HEIGHT	Mean	50	76	63
	Range	36-62	62-92	42-92
	Std deviation	8.5	10.4	7.23
HYPOCOTYL COLOUR		purple	purple	green
FLOWER COLOUR		purple	purple	white
LEAF SHAPE		ovoid	ovoid	ovoid
PUBESCENCE COLOUR		brown	brown	brown
POD COLOUR		tan	tan	brown
UNIFOLIATE LEAF — LENGTH	Mean	33.0 mm	38.6 mm	39.5 mm
	Range	28-39	32-45	31-45
	Std deviation	3.53	2.93	4.15
— WIDTH	Mean	27.0 mm	34.9 mm	34.5 mm
	Range	20-32	27-41	29-38
	Std deviation	2.93	3.10	2.68
— PETIOLE	Mean	8.1 mm	12.9 mm	13.3 mm
	Range	5-13	11-14	7-18
	Std deviation	1.97	1.12	2.92
TERMINAL LEAFLET — LENGTH	Mean	101 mm	115 mm	115 mm
	Range	87-112	90-128	97-127
	Std deviation	7.6	10.7	7.8
— WIDTH	Mean	64 mm	67 mm	68 mm
	Range	57-77	57-81	53-76
	Std deviation	5.3	6.7	6.1
PHYTOPHTHORA ROOT ROT		immune	immune	immune
SEED SHAPE		flattened spherical	spherical	spherical
SEED COAT LUSTRE		shiny	shiny	shiny
SEED COAT COLOUR		yellow	yellow	yellow
COTYLEDON COLOUR		yellow	yellow	yellow
HILUM COLOUR		black	black	black
100 SEED WEIGHT		16.4 g	19.2 g	19.4 g
OIL CONTENT		—	—	—
PROTEIN CONTENT		—	—	—

**TABLE OF COMPARISON FOR SOYBEAN VARIETIES**

		'Bossier'	'Nessen'	'Canapolis'
DAYS TO FLOWERING	Mean	70	60	85
	Range	68-74	58-64	77-89
	Std deviation	3.5	1.6	2.3
MATURE PLANT HEIGHT	Mean	78	65	96
	Range	66-98	56-74	66-140
	Std deviation	9.1	6.3	20.3
HYPOCOTYL COLOUR		purple	purple	green
FLOWER COLOUR		purple	purple	white
LEAF SHAPE		—	ovoid	—
PUBESCENCE COLOUR		brown	grey	brown
POD COLOUR		tan	tan	tan
UNIFOLIATE LEAF — LENGTH	Mean	43.9 mm	39.7 mm	33.6 mm
	Range	37-48	35-46	30-37
	Std deviation	3.28	2.66	2.21
— WIDTH	Mean	37.1 mm	34.0 mm	33.9 mm
	Range	32-42	27-40	27-38
	Std deviation	3.19	3.02	2.73
— PETIOLE	Mean	16.9 mm	13.8 mm	8.75 mm
	Range	13-22	8-19	6-12
	Std deviation	2.41	2.40	1.74
TERMINAL LEAFLET — LENGTH	Mean	117 mm	119 mm	98 mm
	Range	107-136	95-133	86-119
	Std deviation	8.7	9.6	9.1
— WIDTH	Mean	67 mm	68 mm	56 mm
	Range	59-80	50-75	49-69
	Std deviation	5.7	6.3	5.4
PHYTOPHTHORA ROOT ROT		susceptible	immune	susceptible
SEED SHAPE		spherical	spherical	spherical
SEED COAT LUSTRE		shiny	dull	shiny
SEED COAT COLOUR		yellow	yellow	yellow
COTYLEDON COLOUR		yellow	yellow	yellow
HILUM COLOUR		black	grey	brown
100 SEED WEIGHT		16.1 g	16.1 g	15.8 g
OIL CONTENT		19.9 %	18.8 %	19.3 %
PROTEIN CONTENT		41.3 %	41.4 %	42.7 %

## RAPE

(*Brassica napus* var. *biennis*)



Forage rape 'Hobson' with white flowers in contrast to yellow flowers of other variety. (Photo supplied by applicant)

Variety: 'Hobson' Application No. 88/028

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 biennial flowering habit; white flowers with four petals and purple anther tips; and a black seed coat.

### Varieties used for comparison

'Rangi', 'Winifred' and 'Giant' being other type forage rapes.

### Comparative Growing Trials

All measurements and comparisons made are from comparative growing trials in Canterbury on the South Island of New Zealand, sown in November 1985 and measured in March/April 1986. There were 4 replicated plots in a randomised block design. Measurements were from 20 plants selected at random from those plots.

Further growing trials in Australia are being conducted to verify this description.

### Origin

'Hobson' was bred by ICI Seeds UK Limited of Boston, Lincolnshire in United Kingdom and is protected there by Plant Variety Rights. It also has Plant Variety Rights granted in New Zealand and applications have been made in France and West Germany.

'Hobson' was derived from a single plant mutant from the cultivar 'Lair' in 1977. The plant was self-pollinated and the progeny selected for conformity to type.

## TABLE OF COMPARISON FOR RAPE VARIETIES

		'Hobson'	'Rangi'	'Winifred'	'Giant'
PLANT HEIGHT	Mean	59.75 cm	50.25 cm	49.35 cm	44.5 cm
	Range	50-75	40-60	32-60	35-60
	Standard deviation	7.52	5.95	8.4	7.24
FIRST LEAF HEIGHT	Mean	16.9 cm	7.65 cm	12.95 cm	7.13
	Range	7-25	1-17	5-23	2-17
	Standard deviation	5.33	3.82	5.57	3.49
PETIOLE PERCENTAGE OF LEAF LENGTH	Mean	23.7 %	37.6 %	33.3 %	32.9 %
	Range	11-38	25-56	11-43	15-48
	Standard deviation	6.91	8.38	7.23	8.25
LEAF LENGTH	Mean	39.4 cm	43.35 cm	40.15 cm	36.25 cm
	Range	30-48	34-52	31-50	29-45
	Standard deviation	6.27	4.44	5.47	4.31
LEAF LENGTH/WIDTH	Mean	2.91	3.27	2.71	3.18
	Range	2.29-3.54	2.53-4	2.17-3.42	2.31-4.86
	Standard deviation	32.27	38.82	34.97	63.6
HAIRS ON NEW LEAF ranked (1-3)	Mean	few	few	few	medium
		1.05	1	1.1	1.45
LEAF LOBBING ranked (1-3)	Mean	medium	medium	weak	med-strong
		2.75	2.75	1.05	2.9
FLOWER COLOUR		white	yellow	yellow	yellow
LEAF BLADE ON PETIOLE		not	not	continuous	not

**Morphology** — See comparison tables.

'Hobson' is a giant type open-pollinated biennial rape, distinct from other varieties in being 100% white flowered whereas other varieties are yellow flowered. 'Hobson' has 100% purple tipped anthers and no flowers with more than 4 petals, unlike 'Rangi' which has 2% with more than 4 petals. 'Hobson' plants are relatively tall. Leaves are dark green, the blade not continuous along the petiole with margins strongly lobed, serrate and waved. Anthocyanin expression was weak in leaves and medium-weak in stems. Seed colour is black with a 1000 weight of about 3.6 grams, similar to 'Winfred', 'Rangi' and 'Giant'.

#### **Agronomy**

'Hobson' is bred as a forage plant in temperate regions and is not intended for oilseed production. It is regarded as an early flowering variety and its vernalisation requirement to achieve flowering is considered to be weak.

## **FRENCH BEAN**

*(Phaseolus vulgaris)*

Variety: 'Bronco' Application No. 88/030

Applicant: **Asgrow Seed Company**, of Michigan, USA.

Agent in Australia: **New World Seeds Pty Ltd**, of Galston, NSW.

#### **Diagnosis**

This variety is distinct from all other known varieties in having the following combination of characters: long pods with oval cross-section and dark green colour; a high bush growth form; and a stout and wiry main stem.

#### **Varieties used for comparison**

'Labrador', 'GV 50', 'Strike' and 'Slenderette', all being white flowered, pale seeded stringless green beans.

#### **Comparative Growing Trials**

All characteristics described and comparisons made are from comparative growing trials conducted at Galston, near Sydney NSW in February 1988. Varieties were sown in rows 40 cm apart with 5 cm intervals between plants. Measurements in the table of comparison are from 25 plants for each variety sampled at random, excepting pod length which was assessed from one randomly selected plant at optimum maturity, discarding pods under 10 cm.

#### **Origin**

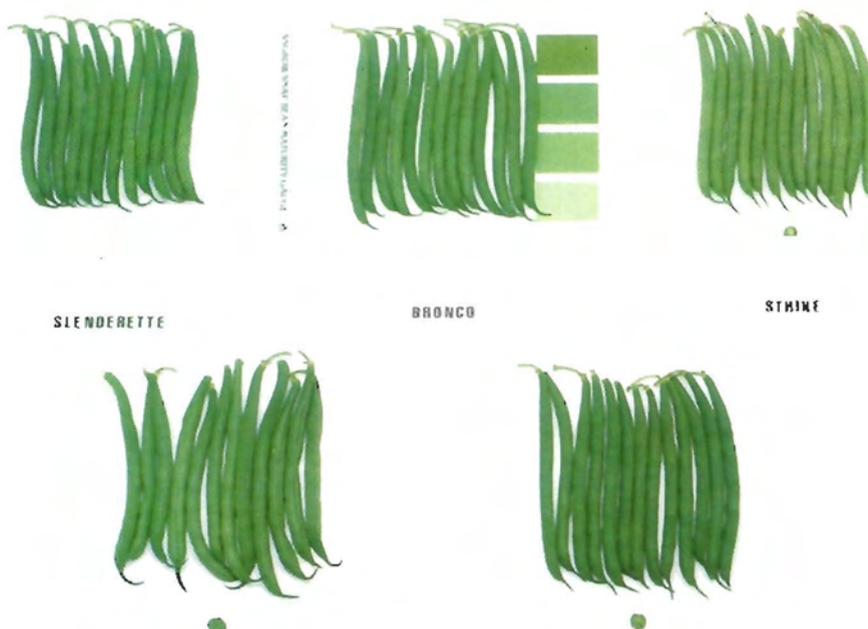
'Bronco' was bred in Idaho, USA by the applicant. Applications have also been made for Plant Variety Protection in USA and Plant Variety Rights in United Kingdom. 'Bronco' arises from the pollination of 'Strike' by 'Slenderette' in 1976 and subsequent single plant selections of the progeny at 5 generations from F2 onwards, culminating in the final seed line at F9 in 1985. Selection was on the basis of agronomic characters and uniformity of type.

**Morphology** — See comparison tables.

'Bronco' is a white flowered, white seeded, high bush form, french bean variety with a stout and wiry main stem. The oval pod cross-section distinguishes 'Bronco' from all of the compared varieties. 'Bronco' is distinct from 'Labrador' in also having slightly longer pods with more ovules than 'Labrador'. The pods of 'Bronco' (RHS 144A) are darker in colour than those of 'Slenderette' (145 A). 'Bronco' also differs, in its wiry stem and high bush form, from 'Strike' which has a predominantly more brittle stem and a stem type bush form. The recorded sieve sizes indicate 'Bronco' had a higher percentage of mature pods in category 3 than the other varieties measured.

#### **Agronomy**

The applicant considers 'Bronco' to be relatively heat tolerant compared with other varieties and 'Bronco' is intended for cropping during the hotter months of the growing season.



Slide showing pods of 'Bronco' compared with other bean varieties (Photo supplied by Applicant)

**TABLE OF COMPARISON OF BEAN VARIETIES**

			'Bronco'	'Labrador'	'Strike'	'G V 50'	'Slenderette'
MAIN BRANCH HEIGHT	Mean		50.96 cm	51.36 cm	47.84 cm	54.88 cm	41.44 cm
	Range		42-57	46-59	34-54	46-60	35-48
	Std deviation		3.71	3.36	4.57	4.58	2.81
NO. BASAL BRANCHES (in first 10 cm)	Mean		3.64	4.4	3.68	3.7	4.83
	Range		3-6	3-6	3-5	3-5	3-7
	Std deviation		0.86	0.82	0.69	0.55	1.2
MAIN STALK			stout/wiry	stout/wiry	stout/brittle	stout/brittle	stout/brittle
POD POSITION			scattered	scattered	high	scattered	scattered
BUSH FORM			high	high	stem	stem	stem
NO. PODS PER PLANT	Mean		23.68	19.28	24.4	21.36	22.72
	Range		16-39	11-27	13-32	10-35	13-37
	Std deviation		5.29	5.05	4.87	6.08	5.33
POD LENGTH	Mean		149.08 mm	141.08 mm	146.24 mm	140.6 mm	134.44 mm
	Range		131-166	110-168	134-167	100-170	120-160
	Std deviation		9.42	16.12	8.64	16.4	11.8
NO. OVULES PER POD	Mean		6.88	6.0	5.84	5.44	6.44
	Range		6-8	5-7	4-7	4-7	6-7
	Std deviation		0.52	1.12	0.8	0.87	0.77
SIEVE SIZE DISTRIBUTION (mature pods)	2	5.76 mm	0 %	4 %	16 %	0 %	0 %
	3	7.34 mm	68 %	20 %	44 %	4 %	56 %
	4	8.34 mm	24 %	64 %	40 %	16 %	44 %
	5	10.72 mm	8 %	12 %	0 %	52 %	0 %
	6 over 10.72 mm		0 %	0 %	0 %	28 %	0 %
SPUR LENGTH	Mean		10.28 mm	11.24 mm	12.72 mm	18.44 mm	13.72 mm
	Range		5-15	7-16	9-16	13-23	8-19
	Std deviation		2.45	2.66	1.79	2.66	4.65
POD CURVATURE ranked (1-9)			slight 3	slight 2	slight 2	strong 7	slight 3
SPUR CURVATURE ranked (1-9)			slight 3	slight 2	slight 2	strong 7	slight 4
POD COLOUR			144 A	146 B	144 D	144 B	145 A
POD CROSS SECTION			oval	round	round	heart-shape	round
POD CONSTRICTIONS ranked (1-9)			very slight 2	slight 3	slight 3	slight 4	very slight 2
SUTURE STRING			absent	absent	absent	absent	absent
SEED COAT COLOUR			white	white	white	cream	white
DAYS TO 50% FLOWERING			36	34	37	36	35
FLOWER COLOUR(S)			white	white	white	white	white

# FRENCH BEAN (*Phaseolus vulgaris*)



Slide showing pods of 'Gresham' compared with other bean varieties (Photo supplied by Applicant)

Variety: 'Gresham' Application No. 89/016

Applicant: **Booker Seeds Pty Ltd** of Lincolnshire, United Kingdom.

Agent in Australia: **Sunland Seeds Pty Ltd, trading as Gordon Smith & Son** of Harrington, NSW.

### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: white flowers; a high bush form; medium length dark green pods, round in cross section; and a white seed coat.

### Varieties used for comparison

'Slenderette', 'Covey' and 'Labrador', also having white flowers, white seed coats and stringless pods which are round in cross-section.

### Comparative Growing Trials

All described characteristics and comparisons are from comparative growing trials conducted at Taree on coastal NSW in April, 1989. Trials consisted of 2.5 metre rows of each variety in rows 65 cm apart and 6 cm interval between plants with 2 replicates and 0.2 hectare plots with the same row spacing at the same site. Measurements are from either 33 or 100 plants chosen at random. Pod length was assessed from mature plants, discarding pods under 10 cm. Main branch height

was actually measured as a length due to weather damage of mature plants.

### Origin

'Gresham' was bred by Charles Sharpe & Co of Lincolnshire, United Kingdom and has been protected by Plant Variety Rights there since February, 1988.

'Gresham' arises from the pollination of 'Idalight' by 'Slenderette' and single plant selection of the progeny at F3, F4, and F8 on the basis of conformity to plant type, yield and other performance characteristics.

### Morphology — See comparison tables.

'Gresham' was recorded as having more pods per plant (13.45) and a higher proportion (46%) of pods with sieve size 4 than 'Covey', 'Slenderette' or 'Labrador'. Mature plants of 'Gresham' were taller and more upright than those of 'Covey'.

Pod colour of 'Gresham' was dark green corresponding to RHS 137B as were 'Covey' and 'Labrador'. 'Gresham' pods had longer and slightly more curved spurs than those of 'Covey' and 'Slenderette' but similar to 'Labrador'. Pod constrictions of 'Gresham' were ranked as medium whereas 'Labrador' were less pronounced being ranked as slight and 'Gresham' had more ovules per pod than 'Labrador'.

### Agronomy

During comparative growing trials, wet conditions enhanced infestation of bean rust. 'Gresham' was observed to have a tolerance to the field strain of bean rust *Uromyces appendiculatus* whereas the other varieties 'Slenderette', 'Covey' and 'Labrador' were strongly and visibly affected by rust.

'Gresham' is intended for cropping for fresh market and processing. It is believed by the applicant to have a tolerance to both high and low temperatures, thereby maintaining yields in cool conditions and setting pods under very hot conditions when other varieties are affected by pollen blast.

**TABLE OF COMPARISON OF BEAN VARIETIES**

		'Gresham'	'Covey'	'Slenderette'	'Labrador'
MAIN BRANCH HEIGHT (as a length)	Mean	44.33 cm	43.58 cm	45.96 cm	42.51 cm
	Range	32-57	30-50	37-56	29-57
	Standard deviation	5.73	5.49	4.41	5.65
NO. BASAL BRANCHES (in first 10 cm)	Mean	2.24	2.44	2.06	2.33
	Range	1-4	1-5	0-4	1-6
	Standard deviation	1.13	1.25	0.97	1.17
MAIN STALK		stout/wiry	stout/wiry	stout/brittle	stout/wiry
POD POSITION		high	high	scattered	high
BUSH FORM		high	high	high	high
NO. PODS PER PLANT	Mean	13.45	11.09	10.55	11.24
	Range	5-32	2-19	4-21	2-24
	Standard deviation	5.51	4.29	3.69	4.72
POD LENGTH	Mean	122.78 mm	114.96 mm	113.73 mm	118.85 mm
	Range	100-142	101-144	100-137	100-157
	Standard deviation	10.36	7.95	8.72	13.77
NO. OVULES PER POD	Mean	6.39	6.42	6.22	5.12
	Range	5-8	4-8	3-8	2-7
	Standard deviation	0.71	0.84	0.91	1.1
SIEVE SIZE DISTRIBUTION (mature pods)	1	5.76 mm	2 %	0 %	2 %
	2	7.34 mm	4 %	13 %	15 %
	3	8.34 mm	35 %	59 %	65 %
	4	9.53 mm	46 %	24 %	14 %
	5	10.72 mm	12 %	4 %	4 %
	6 over 10.72mm		0 %	0 %	0 %
SPUR LENGTH	Mean	11.81 mm	10.3 mm	10.28 mm	11.23 mm
	Range	8-16	7-14	4-19	7-16
	Standard deviation	1.97	1.44	2.22	1.76
POD CURVATURE ranked (1-9)	Mean	medium 3.4	slight 2.6	slight 2.9	medium 3.3
	Mean	slight 3.23	slight 2.8	slight 2.9	slight 1.8
POD CROSS SECTION		round	round	round	round
POD CONSTRICTIONS ranked (1-9)		medium 5	medium 5	medium 5	slight 3
DAYS TO 50% FLOWERING		39	40	41	37



Persian clover 'Kyambro' showing prostrate growth habit and leaf markings. (Photo supplied by applicant)

## PERSIAN CLOVER

(*Trifolium resupinatum* var. *resupinatum*)

Variety: 'Kyambro' Application No. 89/014

Applicant: Minister of Agriculture, South Australia.

### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: an early flowering date; a high level of hardseedness (seed coat relatively impermeable to water); the presence of variable leaf markings; and a prostrate growth habit.

### Variety used for comparison

'Maral'

### Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at Naracoorte, Struan, Lochaber and Kybybolite, South Australia from 1982 to 1988 inclusive. Trials consisted of swards approximately 20 m<sup>2</sup>, planted in June 1988 at a density of 1,000 per m<sup>2</sup> in a randomised block design. Measurements in the table of comparison represent 20 specimens of each variety, sampled in December 1988 at Kybybolite unless otherwise indicated. Leaf measurements are taken from the third youngest fully open leaf on the main stem. Stem thickness is measured below the third leaf and internode length is from the main stem internode between second and third leaf. Inflorescence measurements are

from the second youngest fully opened flower on the main stems.

### Origin

The breeder is A D Craig of The Department of Agriculture, South Australia. This variety arose from a selection made from a plain-leaf parent accession in 1982 at Parafield Plant Introduction Centre. The selection expressed variable leaf markings and was subsequently observed to have stronger growth and earlier flowering than the parent. From 1982 to 1986, the open-pollinated progeny was assessed with other *T. resupinatum* accessions and selected on the basis of hardseeded content, maturity date, disease tolerance, growth habit, regenerative ability, herbage production and seed yield.

### Morphology — See comparison tables.

Other characteristics not mentioned in the tables are described here.

Leaves are green, frequently and variably marked, glabrous and the leaflets are obovate in outline with margins serrated to a varying degree. Stems are glabrous with the measured internode length  $18.1 \pm 7.9$  mm. Flowers are purple petaled and fragrant, clustered in globular inflorescences with measured  $7.6 \pm 1.6$  mm length and  $11.2 \pm 1.2$  mm diameter, borne on a peduncle measured  $19.0 \pm 3.7$  mm long. Mature pods are lenticular in shape, 2.5 mm long by 1.8 mm wide and brown when mature, containing 1–2 seeds (1.8 average). There are many pods per plant, with an average of 35 pods per peduncle and 880 pods per plant. In the 1988 Naracoorte trials, 'Kyambro' took 230 days from sowing to maturity.

'Kyambro' differs from 'Maral' in its prostrate growth habit compared to the erect growth habit of 'Maral', the presence of variable leaf markings compared to the plain leaves of 'Maral' and the high level of hardseededness compared to the predominantly soft-seeded (water permeable seed coat) 'Maral'. Also, the flowering of 'Kyambro' is earlier than the flowering 'Maral'.

#### Agronomy

'Kyambro' is an annual pasture legume intended for use as a hay plant or as component of mixed pastures. It regenerates annually by seed, germinating in autumn. It is best adapted to areas with alkaline clay soils, with a 7-8 month growing season. These areas have a Mediterranean type climate, receiving about 550-650 mm in rainfall annually.

### TABLE OF COMPARISON OF PERSIAN CLOVER VARIETIES

		'Kyambro'	'Maral'
GROWTH HABIT		prostrate	erect
STEM BRANCHING		moderate	few
STEM THICKNESS	Mean	1.4 mm	2.1 mm
	Range	1.1-2.0	1.5-2.8
	Std deviation	0.3	0.3
LEAF MARKERS		variable	absent
TERMINAL LEAFLET LENGTH	Mean	11.7 mm	27.5 mm
	Range	8.5-17	19.5-38
	Std deviation	2.2	5.4
TERMINAL LEAFLET WIDTH	Mean	5.9 mm	14.0 mm
	Range	4.0-9.0	8.5-20
	Std deviation	1.4	3.1
PETIOLE LENGTH	Mean	4.3 mm	15.6 mm
	Range	3.0-6.0	5.0-29.0
	Std deviation	0.7	6.7
PETIOLE WIDTH	Mean	1.00 mm	1.2 mm
	Range	0.8-1.1	1.0-1.5
	Std deviation	0.1	0.1
PEDUNCLE LENGTH	Mean	19.0 mm	30.7 mm
	Range	13-27	18-51
	Std deviation	3.7	8.4
INFLORESCENCE LENGTH	Mean	7.6 mm	9.6 mm
	Range	6-13	7-11.5
	Std deviation	1.6	1.1
INFLORESCENCE WIDTH	Mean	11.2 mm	14.9 mm
	Range	8-14	11-19
	Std deviation	1.2	2.3
FLOWER COLOUR		deep purple	pink-purple
MEAN DAYS TO FIRST FLOWER (on 50 % plants) FROM SOWING			
	Kybybolite, 1988	133	159
	Naracoorte, 1988	139	163
HARD SEED PERCENTAGE AT MATURITY			
	Lochaber, 1984	97 %	1 %
	Lochaber, 1985	93 %	0 %
	Struan, 1986	96 %	1 %
	Kybybolite, 1988	96 %	1 %
1000 SEED WEIGHT		0.55 g	1.47 g
SEED COLOURS (approximate)	brown	46 %	—
	green	36 %	—
	yellow	17 %	—

### SUBTERRANEAN CLOVER (*Trifolium subterraneum* ssp. *brachycalycinum*)

Variety: 'Rosedale' Application No. 89/015

Applicant: Minister of Agriculture of Adelaide, South Australia.

#### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a pale green narrow band running transversely across the centre of leaflets which is more prominent in cool conditions; entirely green calyces; stipules pigmented red in the basal half; and amber coloured seed.

#### Varieties used for comparison

'Clare', 'Northam', 'Dalkeith' and 'Trikkala'. 'Clare' is the only other variety within the same sub-species *brachycalycinum*

#### Comparative Growing Trials

All characteristics described and comparisons, unless stated otherwise, are from comparative growing trials conducted at Turretfield, South Australia in 1988. Trials consisted of swards approximately 30 m<sup>2</sup>, sown in April 1988 at a density of 10 kg per hectare in a randomised block design. Characteristics noted were based on assessment of 10 plants chosen at random from each plot. Hardseededness (seed with coats relatively impermeable to water) was assessed after 3 months breakdown in field conditions from trials at Turretfield assessed in March 1988.

#### Origin

The breeder is P E Beale, formerly of Department of Agriculture, South Australia.

'Rosedale' arises from the selection during 1980 to 1987 of individual plants and plant populations from collected specimens maintained as self-pollinated accessions of *var. brachycalycinum* at a Plant Introduction Centre in Perth, Western Australia. From 250 initial accessions supplied, 30 lines were selected in 1981 and 1982 for further evaluation, on visual appraisal of growth vigour and morphological uniformity. Of these, 6 were selected mainly on the basis of persistence in trials conducted from 1983 to 1985. From these, a final selection mainly on the basis of dry matter yield was made in 1987 of a line which now constitutes 'Rosedale'.

#### Morphology — See comparison tables.

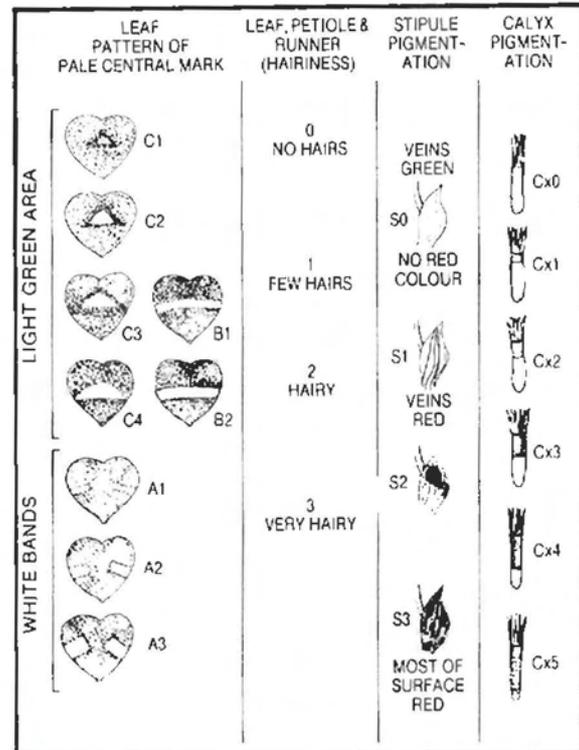
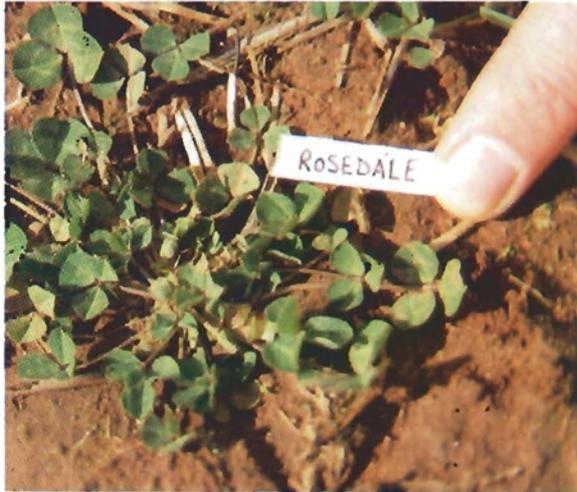
Australian subterranean clover varieties are distinguished from one another by a combination of relatively stable descriptors as detailed in the publication by Collins, Francis & Quinlivan titled *Registered Cultivars of Subterranean Clover — their Origin, Identification and Potential Use in Western Australia, WA Department of Agriculture Bulletin No. 4083 of 1984*. The main descriptors used are flower colour, central leaf mark pattern, upper leaf surface pubescence, calyx and stipule pigmentation and stem pubescence. (see figure). These characteristics, however, are not uniform throughout any variety and may also vary in response to environment (particularly pigmentation with temperature). 'Rosedale' can be

distinguished from 'Clare', 'Northam' and 'Dalkeith' in having amber coloured seed compared to the black seed of those varieties and from 'Trikkala' by its pale narrow transverse leaf mark compared to the prominent central leaf marks found in 'Trikkala'.

Other characteristics not mentioned in the tables are described as follows. Flower corolla is white with slight pale pink striping. Time to flowering for 'Rosedale' (111 days average) is 9 to 12 days earlier than 'Clare' (124 days average), based on published trial data from 5 different sites. Leaves, borne on an almost glabrous petiole ranging 45–65 mm long, are predominantly dark green, with broadly obovate but variable in profile central leaflets. Central leaflets range 9–13 mm long by 12–16 mm wide

#### Agronomy

'Rosedale' is an annual pasture legume, intended for a Mediterranean type climate where rainfall exceeds 400 mm per year and the soil is a hard-setting red-brown earth with a pH within the range of 6.5 to 9. 'Rosedale' was observed in field trials to have a greater tolerance to clover scorch (*Kabatiella caulivora*) than 'Clare'.



Key to Sub-clover Markings from Collins, Francis & Quinlivan, *Registered Cultivars of Subterranean Clover — their Origin, Identification and Potential Use in Western Australia*, WA Department of Agriculture Bulletin No. 4083 of 1984. Reproduced courtesy of Western Australian Agriculture Department.

Subterranean clover 'Rosedale'. (Photo supplied by applicant)

### TABLE OF COMPARISON OF SUBTERRANEAN CLOVER VARIETIES

	'Rosedale'	'Clare'	'Northam'	'Dalkeith'	'Trikkala'
SEED COLOUR	amber	purple-black	black	black	amber
GROWTH HABIT	very prostrate	prostrate	prostrate	prostrate	prostrate
100 SEED WEIGHT	8.3 g	12.5 g	—	—	—
HARD SEEDEDNESS	83 %	42 %	49 %	—	—
CALYX PIGMENTATION	absent Cx0	absent Cx0	mostly red Cx4	partly red Cx1	absent Cx0
STIPULE PIGMENTATION	red band and veins S1, S2	red band and veins S1, S2	red veins S1	red veins S1	pink band and veins S1, S2
LEAF MARK	nil-B1	C3-A2, A3	B1	C2, A1	C2-A1
STEM PUBESCENCE ranked 0-4	absent-slight 0-1	absent-slight 0-1	medium 2-3	medium 3	absent 0
LEAF UPPER PUBESCENCE ranked 0-4	slight-medium 1-2	absent-slight 0-1	medium 3	medium 3	absent 0
LEAF SIZE	medium-large	medium-large	small-medium	small-medium	medium

## GUINEA GRASS (*Panicum maximum*)

Variety: 'Natsukaze' Application No. 89/017

Applicant: Director General of the Kyushu National Agricultural Experiment Station of Fukuoka, Japan

### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: medium early heading date; tall plant height; low tiller frequency; large broad leaves; and pubescent leaf blades, sheaths and stem nodes.

### Varieties used for comparison

'Gatton' and 'Petrie'

### Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at Kyushu National Agricultural Experiment Station at Kumamoto, Japan in the years 1982–1984 inclusive. Latitude is 32°N, altitude is 85 Metres, Rainfall 1724 mm in 1984. Trials consisted of 10 spaced plants per plot, sown at intervals of 1.5 by 0.3 metres in a randomised block design with 3 replicates. Measurements in tables of comparison represent 30 specimens of each variety, in September 1984.



Guinea grass (*Panicum maximum*) inflorescences. Green panic = 'Petrie'. (Photo supplied by applicant)



Guinea grass (*Panicum maximum*) 'Natsukaze' (right, tallest), 'Gatton' (centre) and 'Petrie' (left). (Photo supplied by applicant)

Further growing trials will be conducted in Australia to verify this description.

#### Origin

'Natsukaze' guinea grass has Plant Variety Rights protection in Japan since November 1986. The breeder is Hirosayu Sato, of Kyushu National Agricultural Experiment Station at Kumamoto, Japan.

This variety arises from the controlled pollination of a sexual plant accession by pollen from apomictic accessions. Selection of sexual progeny was made for three generations, on the basis of early growth vigour and high dry matter yield. The resultant material was then evaluated at 13 different sites in Japan from 1981 to 1984 for yield, chemical composition, nutrient value and other performance characteristics, resulting in the final selection of an apomictic plant.

#### Morphology — See comparison tables.

'Natsukaze' is a perennial tetraploid ( $2n = 32$ ) erect growing guinea grass. Its reproduction is 85% apomictic — that is, producing seed without sexual recombination.

'Natsukaze' is distinct from 'Gatton' in being more robust and broader leaved than 'Gatton', having denser and shorter leaf sheath pubescence than 'Gatton' and having pubescent stem nodes compared to the glabrous nodes of 'Gatton'. 'Natsukaze' is also distinct from 'Petrie' in being more robust and broader leaved than 'Petrie', having a later heading date than 'Petrie' and having glabrous bright green leaf blade upper surfaces compared to the pale green finely pubescent upper leaf surfaces of 'Petrie'.

#### Agronomy

'Natsukaze' is intended as a summer growing perennial (3–4 years) pasture grass. It is known to have a low frost tolerance.

### TABLES OF COMPARISON OF GUINEA GRASS VARIETIES

		'Natsukaze'	Gatton'	'Petrie'	
RECORDED SEXUAL REPRODUCTION — 8 nuclei per embryo sac					
1983 analysis		15%	6%	0%	
HEADING DATE (from 1 July)	Mean	26.3	13.9	11.7	
	Range	21–31	10–21	5–21	
	Standard deviation	1.44	2.11	2.11	
STEM LENGTH	Mean	221.8 cm	175.7 cm	154.7 cm	
	Range	205–244	151–212	128–185	
	Standard deviation	2.46	2.06	3.86	
STEM DIAMETER	Mean	6.0 mm	4.3 mm	4.1 mm	
	Range	5.1–7.2	3.4–5.5	3.2–5.0	
	Standard deviation	0.35	0.37	0.13	
NO. TILLERS (tillers having not less than 1 node per stem)					
PER PLANT		Mean	29.1	49.3	62.5
		Range	11–62	19–91	18–178
		Standard deviation	3.50	4.29	8.21
LEAF LENGTH (next from flag)	Mean	43.5 cm	38.2 cm	37.3 cm	
	Range	34–52	29–47	21–48	
	Standard deviation	1.36	1.0	5.2	
LEAF WIDTH (same leaf)	Mean	3.2 cm	2.0 cm	1.8 cm	
	Range	2.6–3.5	1.6–2.5	1.4–2.2	
	Standard deviation	0.09	0.03	0.16	
HAIR — Ranked 0 (= glabrous) to 9 (= abundant)					
— ON STEM NODE		Mean	1.7	0	1.9
— ON SHEATH		Mean	3.1	0	4.1
— ON LIGULE		Mean	2.9	1.7	2.5
PANICLE LENGTH	Mean	38.5 cm	27.3 cm	29.3 cm	
	Range	35.2–48.5	17.2–33.0	27.4–41.0	
	Standard deviation	0.49	1.93	0.72	
NO. PANICLES PER PLANT	Mean	23.6	96.8	108.3	
	Range	10–50	32–136	32–230	
	Standard deviation	3.75	18.58	11.53	
NO. RACHIS PER PANICLE	Mean	51.7	38.9	33.5	
	Range	47–56	30–45	26–41	
	Standard deviation	0.35	1.59	2.12	
SEED — RUGOSITY					
		rugose	rugose	rugose	
— GLUME HAIRINESS					
		glabrous	glabrous	pubescent	
— WEIGHT PER 1000 (2 samples)					
		1.02 g	0.89 g	1.0 g	
		1.05 g	0.80 g	0.92 g	

## BARLEY

### *Hordeum vulgare*

Variety: 'Franklin' Application No. 89/018

Applicant: Department of Agriculture, Tasmania

#### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: the Yd 2 gene for tolerance to barley yellow dwarf virus; intermediate growth habit; long and wide flag leaves; strongly pigmented flag leaf auricles; very late maturity; long 2 row heads of medium to lax density; short thick straw; a shallow saucer-shaped rachis stem collar; and many long hairs of uniform length along the rachilla.

#### Varieties used for comparison

'Triumph' and 'Shannon'

#### Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at the Cressy Research Station in northern Tasmania in 1986 and 1988. Varieties were grown in three replications at a planting density of about 150 per m<sup>2</sup>, and measurements were made on a random sample of at least 20 plants per variety.

#### Origin

The breeder is W A Vertigan of the Department of Agriculture, Tasmania.

Seed of barley 'Franklin' (centre), 'Shannon' (right) and 'Triumph' (left) showing rachilla types. (Photo supplied by applicant)

'Franklin' originates from the controlled pollination of 'Shannon' by 'Triumph' carried out at Launceston, Tasmania in 1981. There followed three generations of single plant selection, based on disease tolerance, other agronomic characters and uniformity of type.

#### Morphology — See comparison tables.

'Franklin' is a 2-row Spring type barley with strongly pigmented flag leaf auricles and is relatively thick stemmed and short at maturity. 'Franklin' differs from 'Shannon' in having longer and wider flag leaves than 'Shannon', a shorter mature plant than 'Shannon', a shorter rachilla with denser hairs than 'Shannon' and a saucer type of rachis stem collar compared to the cup type of 'Shannon'.

'Franklin' differs from 'Triumph' in having longer and wider flag leaves than 'Triumph', a later maturing plant than 'Triumph', a rachilla with shorter hairs at the base than those of 'Triumph', the YD2 gene for resistance to barley yellow dwarf virus and a saucer type of rachis stem collar compared to the platform type of 'Triumph'.

The presence of the Yd2 resistance gene has been determined using gel electrophoresis techniques by the Biotechnology unit of the Victorian State Chemistry Laboratory.

#### Agronomy

'Franklin' is intended for sowing from autumn to spring in all areas of Tasmania, and is best suited to long growing seasons. It is observed to be tolerant to Tasmanian field strains of the diseases Barley yellow dwarf virus, powdery mildew (*Erysiphe graminis*), leaf scald (*Rhynchosporium secalis*) and leaf rust (*Puccinia hordei*). 'Franklin' has a strong straw which resists lodging and neck break.





Stem at base of head of barley 'Franklin' (centre), 'Shannon' (right) and 'Triumph' (left) showing stem collar types. (Photo supplied by applicant)

## TABLE OF COMPARISON OF BARLEY VARIETIES

1988 data

		'Franklin'	'Triumph'	'Shannon'
DAYS TO 50 % HEAD EMERGENCE	Sown 3 June	148	142	147
	Sown 5 October	78	73	77
MAIN TILLER HEIGHT (measured from base to flag leaf auricle)	Mean	75.2 cm	77.9 cm	92.3 cm
	Range	71-79	74-81	86-97
	Std deviation	2.52	2.39	3.07
FLAG LEAF LENGTH	Mean	15.8 cm	11.2 cm	12.6 cm
	Range	13-18	7-14	10-15.5
	Std deviation	1.71	2.06	1.39
FLAG LEAF WIDTH	Mean	11.1 mm	8.2 mm	9.1 mm
	Range	9.5-12	6-10.5	7.5-10
	Std deviation	0.85	1.38	0.69
STEM COLLAR TYPE, PERCENT OF SAMPLE	platform	9%	95%	—
	saucer	84%	5%	12%
	cup	7%	—	88%
HEAD LENGTH	Mean	9.9 cm	9.1 cm	10.1 cm
	Range	8.3-11.6	7.8-10.5	8.7-11.4
	Std deviation	0.82	0.76	0.66
LENGTH 10 RACHIS SEGMENTS	Mean	29.7 mm	27.9 mm	29.8 mm
	Range	28-32	27-30	28-31
	Std deviation	0.90	0.89	0.89
RACHILLA LENGTH		medium	med-short	med-long
RACHILLA HAIR PREDOMINANT TYPE		many uniform length	many longer at base	medium number uniform length

## ROSE (*Rosa hybrida*)

Variety: 'Meipinjid' (commercial synonym 'Duke Meillandina') Application No. 89/021

Applicant: S.N.C. Meilland et Cie of Antibes, France.

Australian Agent: John Oakes, HA Oakes & Son of Carrum Downs, Victoria.

### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a dwarf growth habit; very small foliage; very small double type flowers; thorns concave above in profile; and medium pink petal

colours, corresponding to RHS 66C medially and to RHS 57D distally.

### Varieties used for comparison

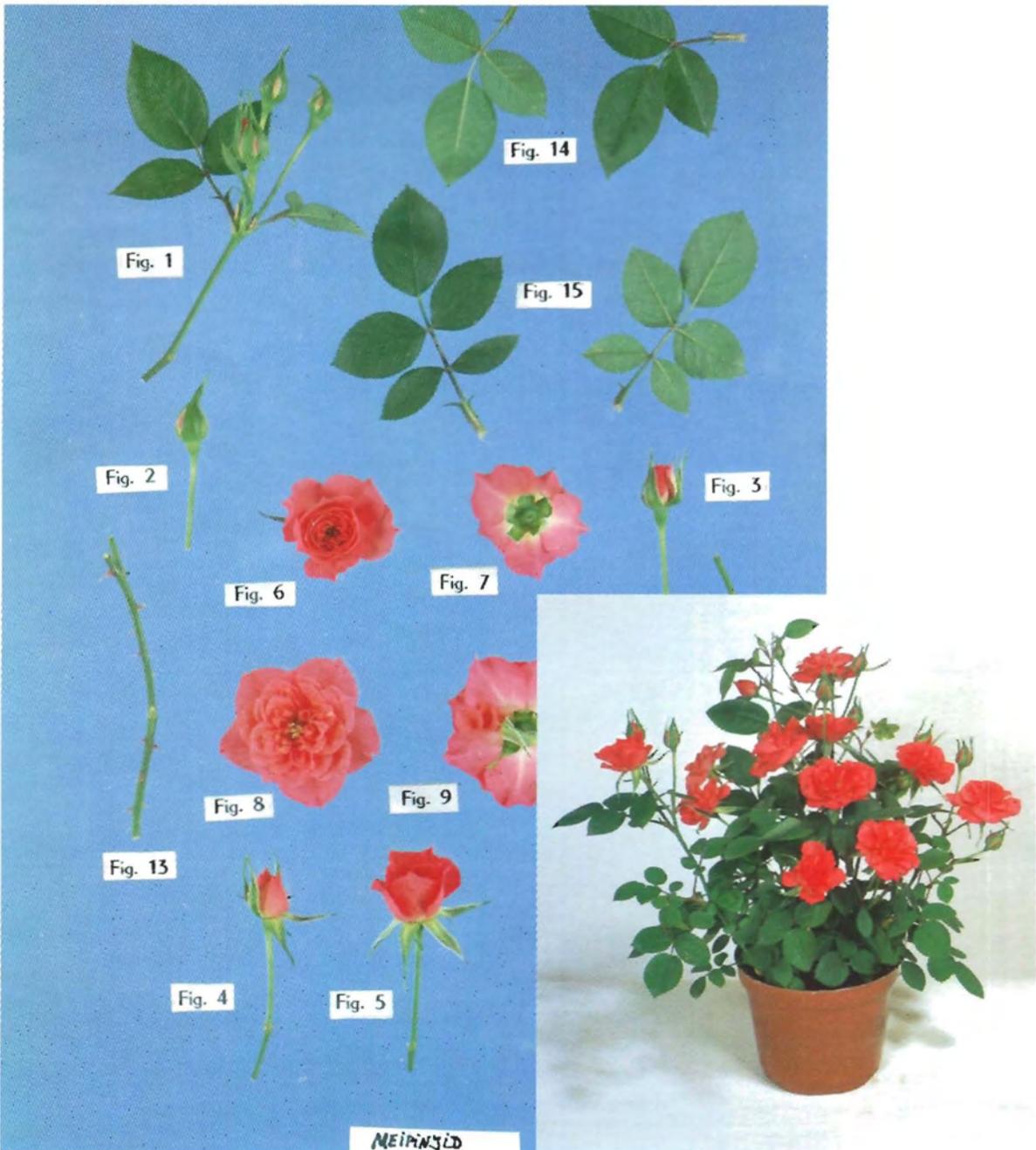
'Carol Jean' & 'Watercolour', both being miniature roses of similar colour.

### Comparative Growing Trials

All characteristics and comparisons below are from comparative growing trials conducted at Devon Meadows on the Mornington Peninsula of Victoria in April 1989. The plants were propagated in December and grown in pots outdoors in paired replicates. Measurements represent 20 randomly chosen specimens from these plants.

### Origin

The breeder was the late Mrs Marie-Louise Meilland in France. 'Meipinjid' has been protected



Miniature rose 'Meipinjid' (syn. 'Duke Meillandina') figs 1-15 showing various characteristics. (Photo supplied by applicant)

Miniature rose 'Meipinjid' (syn. 'Duke Meillandina') in 15 cm pot. (Photo supplied by applicant)



Wyalong wattle (*A. cardiophylla*). Standard form (left) and 'Kuranga Gold Lace' (right) showing prostrate growth habit. (Photo supplied by applicant)

Wyalong wattle (*A. cardiophylla*). 'Kuranga Gold Lace' in flower. (Photo supplied by applicant)



## WHITE CLOVER (*Trifolium repens*)



White clover 'Grasslands Tahora' in flower. (Photo supplied by applicant)

Variety: 'Grasslands Tahora' Application No.89/023

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: small leaves; numerous and highly branched stolons; and about 50% plants cyanogenic.

### Varieties used for comparison

A commercial 'Ladino' variety, 'Tamar', 'Haifa', 'Irrigation', 'Grasslands Huia' and 'Grasslands Kopu'.

### Comparative Growing Trials

All characteristics described and comparisons are, unless stated otherwise, from glasshouse trials conducted at Palmerston North, New Zealand, sown in July 1988. 50 individually potted plants of each variety were grown in "D1" formula potting medium under natural light and temperatures held within 16–24°C. Other trials, conducted outdoors with 100 spaced plants per variety were also conducted at Palmerston North in 1984/85 and 1985/86.

### Origin

The breeder is W M Williams of Grasslands Division, DSIR, New Zealand. 'Grasslands Tahora' is also protected by Plant Variety Rights in New Zealand since 1983 and United Kingdom since 1988.

'Grasslands Tahora' arises from the selection and progeny testing of 64 plants from 2000 accessions collected from 70 hill farms. From these, 25 were selected and poly-crossed to produce the nucleus seed. Criteria used for selection were density, leaf size, stolon spread, seasonal production and persistence.

### Morphology — See comparison tables.

'Grasslands Tahora' is distinct from 'Ladino', 'Tamar', 'Haifa', 'Irrigation' or 'Grasslands Kopu' in 'Grasslands Tahora' having smaller leaves, thinner stolons, a greater number of stolons than those varieties. These differences are also apparent at seedling stage. 'Grasslands Tahora' also has less intense leaf markings than those of 'Haifa' or 'Tamar' and shorter petioles than those of 'Ladino', 'Irrigation' or 'Grasslands Kopu'.

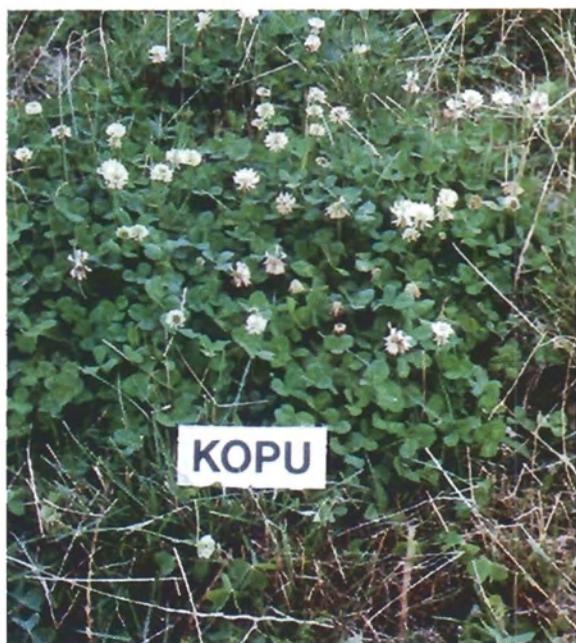
'Grasslands Tahora' had a significantly shorter mean plant heights (about 14 cm in summer) than 'Grasslands Huia' (19 cm) or 'Grasslands Kopu' (24 cm), recorded in two consecutive spaced plant trials. The flowering dates in the same trials did not differ significantly in those 3 varieties and 'Grasslands Tahora' is regarded as a late flowering variety. Flower colour is predominantly white fading to pink, the heads appearing pink flushed. In trials, about 88% of plants had leaf markings and 20% of plants had red flecking on leaves.

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 (see photographs). 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 Tahora' is a perennial pasture legume for temperate regions which the applicant believes to be suited to sheep grazing due to its low crown growth and dense habit.

## WHITE CLOVER (*Trifolium repens*)



White clover 'Grasslands Kopu' in flower. (Photo supplied by applicant)

by Plant Variety Rights in France since 1984. It is also protected in Belgium, Denmark, Japan, West Germany, South Africa, Switzerland and USA. Plant Variety Rights have also been applied for in Israel, Spain and United Kingdom.

'Meipinjid' was a selected sport of the variety 'Meijidiro', differing from 'Meijidiro' in flower colour.

**Morphology** — See comparison tables. Characteristics observed but not included in the table for comparison are as follows.

Flowering occurs almost continuously throughout the year; bud shape is ovate; petals are pink, reflexing and broad ovate with a pale green-yellow basal spot size extending about 30% of petal length); filaments are yellow, styles are yellow-green; stigma are above the level of anthers;

pedicel is smooth, without prickles; leaves are small, medium green, not glossy; thorns are mildly red, with profile concave above and strongly concave below; and young shoots are without anthocyanin.

'Meipinjid' is a dwarf growing plant usually below 60 cm in height and has a more spreading habit than 'Carol Jean' or 'Watercolour'. Terminal leaflets of 'Meipinjid' are rounder in outline than those of 'Watercolour'. The thorns of 'Meipinjid' are more concave above in profile than those of 'Carol Jean' and more numerous than 'Watercolour'. The flowers of 'Meipinjid' are double (more than 50 petals) while those of 'Carol Jean' and 'Watercolour' are semi-double (less than 25 petals). Flower diameter of 'Meipinjid' is similar to 'Watercolour' but wider than 'Carol Jean'. 'Meipinjid' lacks the small white pointed tip of the petal present in 'Carol Jean'.

## TABLE OF COMPARISON WITH ROSE VARIETIES

Flower Characters		'Meipinjid'	'Carol Jean'	'Watercolour'	
FLOWER COLOUR GROUP		Medium pink	medium pink	light pink	
PETAL COLOUR CHARTING					
MIDZONE OUTSIDE	RHS	57D	62A	68C	
MIDZONE INSIDE	RHS	66C	64D	65A	
MARGIN INSIDE	RHS	66C	64D	65A	
PETAL BASAL SPOT COLOUR					
OUTSIDE	RHS	149D	155A	155C	
INSIDE	RHS	149D	155A	155C	
FLOWER TYPE		double	semi-double	semi double	
NUMBER OF PETALS		>50	13-25	13-25	
FLOWER DIAMETER		mean range std deviation	46.45 mm 38-50 3.36	35.85 mm 32-38 2.35	46.40 mm 40-52 3.48
FLOWER SHAPE IN PROFILE		convex	flattened convex	flattened convex	
PETAL SHAPE		broad obovate	broad obovate	broad elliptical	
PETAL SIZE		mean range std deviation	24.85 mm 20-27 2.20	17.0 mm 15-18 1.17	23.05 mm 20-25 1.14
FLOWERING DURATION		long	medium	medium	
SEPAL LENGTH (excl.extensions)		mean range std deviation	26.55 mm 25-29 1.43	12.40 mm 12-14 0.60	17.10 mm 16-19 0.79
SEPAL EXTENSIONS		absent	weak	absent	
PLANT GROWTH HABIT		spreading	bushy	bushy	
TERMINAL LEAFLET LENGTH		Mean Range Std deviation	34.80 mm 27-40 4.06	31.20 mm 25-38 3.52	32.40 mm 24-42 5.82
TERMINAL LEAFLET WIDTH		Mean Range Std deviation	22.45 mm 18-26 2.71	18.60 mm 14-24 2.38	18.9 mm 14-25 3.26
TERMINAL LEAFLET BASE		rounded	rounded	obtuse	
NO. THORNS		many	many	few	
THORN PROFILE (above)		concave	deep concave	concave	

## WYALONG WATTLE (*Acacia cardiophylla*)

Variety: 'Kuranga Gold Lace' Application No. 89/022

Applicant: Kuranga Native Nursery of Ringwood, Victoria

### Diagnosis

This variety is distinct from all other known varieties in having the following combination of characters: a prostrate trailing growth habit (attaining little more than 20 cm height) with stems becoming slightly tortuous in age.

### Variety used for comparison

Standard erect form of *Acacia cardiophylla*.

### Comparative Growing Trials

All characteristics described and comparisons are from comparative growing trials conducted at Wandin North, Victoria in 1989. Trials consisted of 25 plants 'Kuranga Gold Lace' grown from cuttings (potted January, 1989) with 25 plants grown from *A. cardiophylla* seed (sown August 1988 — potted January 1989), all in 15 cm pots outdoors. Potting mixture was 'Debco' soilless mix. Measurements of 20 randomly selected plants were taken in April, 94 days after potting. Four-year-old tub grown plants of the variety were also measured.

### Origin

The breeder is E P Clucas of Kuranga Native Nursery.

This variety was selected for its prostrate growth habit in 1980 from seedlings of *Acacia cardiophylla* sown and grown on the breeders property. Material has been vegetatively propagated since selection and further evaluated by the applicant for its growth characteristics.

### Morphology — See comparison tables.

'Kuranga Gold Lace' is a perennial shrub with a trailing prostrate growth habit. Its flowering is not observed to differ from the standard *A. cardiophylla* form. Flowering occurs from August to September, when the plants produce many mildly perfumed golden yellow globular heads about 1 cm in diameter in dense ancillary racemes 3–5 cm long.

The foliage of 'Kuranga Gold Lace' is typical *A. cardiophylla* and not observed to differ from the standard form.

The stems' prostrate growth habit is the main characteristic distinguishing 'Kuranga Gold Lace' from other *A. cardiophylla*. The stems of 'Kuranga Gold Lace' also differ from those of the standard *A. cardiophylla* in becoming tortuous with age.

### Culture'

'Kuranga Gold Lace' is propagated vegetatively from cuttings. It is considered by the applicant to be suitable for growth outdoors in temperate regions of Australia. It is frost-tolerant and requires a well drained soil.

## TABLE OF COMPARISON FOR WYALONG WATTLE VARIETIES

		'Kuranga Gold Lace'	<i>A. cardiophylla</i>
PLANT HEIGHT AT 94 DAYS (POTTED)	Mean	8.4 cm	60.3 cm
	Range	4.4–14.4	44.8–79.6
	Std deviation	2.4	8.82
PLANT HEIGHT AT 4 YEARS (POTTED)	Mean	13.6 cm	—
	Range	9.0–19.4	—
	Std deviation	2.33	—
GROWTH HABIT		prostrate & trailing	erect & arching
MAIN STEM		slightly tortuous	not tortuous
LENGTH OF RACHIS	Mean	5.38 cm	6.06 cm
	Range	3.8–7.5	3.8–7.7
	Std deviation	1.14	0.967
WIDTH	Mean	1.74 cm	1.85 cm
	Range	1.2–2.2	1.6–2.7
	Std deviation	0.27	0.36
LENGTH TO WIDTH RATIO	Mean	3.1	3.14
	Range	2.2–3.6	1.6–2.7
	Std deviation	0.4	0.35
NUMBER OF PINNAE	Mean	15.6 pairs	17.55 pairs
	Range	13–19	12–20
	Std deviation	1.77	1.9
PINNAE INTERVAL	Mean	3.4 mm	3.4 mm
	Range	2.4–04.2	2.7–04.1
	Std deviation	0.48	0.37
NUMBER OF PINNULES	Mean	16.7	19.5
	Range	14–22	16–24
	Std deviation	1.92	2.08
PINNULE INTERVAL (WIDTH PER PINNULE)	Mean	1.05 mm	1.0 mm
	Range	0.78–1.38	0.8–1.35
	Std deviation	0.15	0.14

Variety: 'Grasslands Kopu' Application No. 89/024

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: large leaves with long petioles; long peduncles; large flowers; thick stolons; and faint leaf markings.

#### Varieties used for comparison

'Ladino', 'Tamar', 'Haifa', 'Irrigation', 'Grasslands Huia' and 'Grasslands Tahora'.

#### Comparative Growing Trials

All characteristics described and comparisons are, unless stated otherwise, from glasshouse trials conducted at Palmerston North, New Zealand, sown in July 1988. 50 individually potted plants of each variety were grown in "D1" formula potting medium under natural light and temperatures held within 16–24°C. Other trials, conducted outdoors with 100 spaced plants per variety were also conducted at Palmerston North in 1984/85 and 1985/86.

#### Origin

The Breeders are W M Williams and B Cooper, both of DSIR Grasslands Division, New Zealand. 'Grasslands Kopu' has been protected by Plant Variety Rights in New Zealand since 1987.

'Grasslands Kopu' arises from selection of the progeny of pair crosses between plants of 'Grasslands Pitau' and plants of 'Regal', 'Lodigiano', 'Lodi' and 'Pilgrim' made in 1967. Selection was made at F1 in 1967, F2 in 1972 and F3 in 1976 with yield and disease resistance as the main criteria. An open pollination of 11 selected parent plants forms the nucleus seed of 'Grasslands Kopu'.

#### Morphology — See comparison tables.

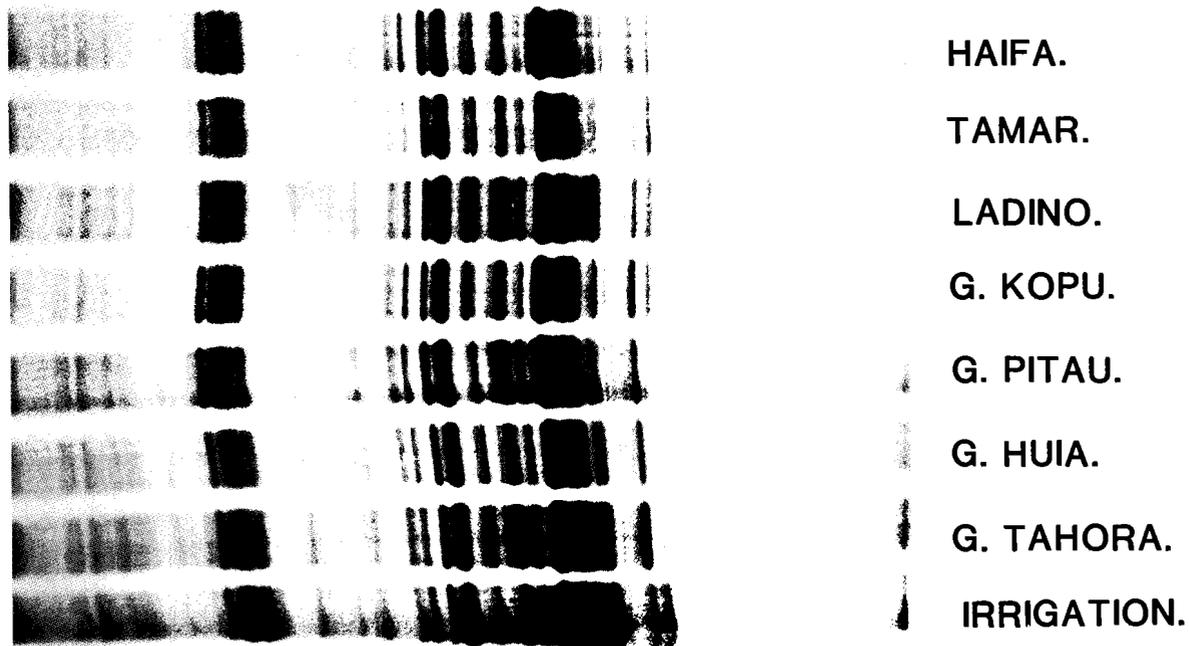
The leaves of 'Grasslands Kopu' are longer and wider than those of 'Haifa', 'Irrigation' or 'Grasslands Tahora', longer but not wider than those of 'Tamar' but shorter and more narrow than those of 'Ladino'. 'Grasslands Kopu' also has less intense leaf markings than those of 'Haifa' or 'Tamar'. 'Grasslands Kopu' has a higher frequency recorded of plants with cyanogenesis than 'Ladino' but lower than recorded for 'Haifa', 'Tamar' or 'Irrigation'.

'Grasslands Kopu' had significantly taller mean plant heights (about 24 cm in summer) than 'Grasslands Tahora' (14 cm) or 'Grasslands Huia' (19 cm), recorded in two consecutive spaced plant trials. The flowering dates in the same trials did not differ significantly in those 3 varieties and 'Grasslands Kopu' is regarded as a late flowering variety. Flower colour is predominantly white fading to pink, the heads appearing pink flushed. In trials, about 95 % of plants had leaf markings and 40% of plants had red flecking on leaves.

Grasslands Kopu' produced, in trials, significantly longer peduncles (255 mm) than 'Irrigation' (189 mm) and 'Grasslands Tahora' (176 mm) but significantly shorter than those of 'Ladino'. 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 (see photographs). 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 Kopu' is a perennial pasture legume for temperate regions which the applicant believes to be more suited to cattle rather than sheep grazing due to its large foliage and upright growth habit.



Electrophoretic gels of white clover varieties seed protein showing characteristic banding patterns. (Photo supplied by applicant)

## TABLE OF COMPARISON WITH CLOVER VARIETIES

		Ladino variety	'Grasslands Tahora'	'Tamar'	'Grasslands Kopu'	'Haifa'	'Irrigation'
TERMINAL LEAFLET LENGTH	Mean	34.23 mm	16.28 mm	35.11 mm	30.43 mm	29.29 mm	24.08 mm
	Range	22-53	9.5-22.5	22-47	17-50.5	17-45	15-40
	Std deviation	6.83	3.15	5.59	7.66	5.54	4.92
TERMINAL LEAFLET WIDTH	Mean	30.36 mm	15.19 mm	28.42 mm	27.55 mm	24.75 mm	21.81 mm
	Range	21-40.5	9-21	19-36	16-38	15-33	11-29
	Std deviation	5.51	3.89	5.33	5.49	4.97	4.67
PETIOLE LENGTH	Mean	281.91 mm	161.41 mm	198.42 mm	255.65 mm	185.73 mm	224.40 mm
	Range	141-440	69-252	120-310	101-446	115-496	114-355
	Std deviation	75.34	51.61	46.73	77.20	63.51	59.47
STOLON WIDTH	Mean	3.12 mm	1.73 mm	2.62 mm	2.74 mm	2.71 mm	2.04 mm
	Range	2-4	1-2	1-4	2-4	1-4.5	1.5-3
	Std deviation	0.51	0.33	0.64	0.55	0.71	0.35
LEAF MARK INTENSITY (ranked 1-5)		2.59	2.38	3.30	2.45	4.24	2.60
FLOWER SIZE	Mean	24.59 mm	22.77 mm	37.73 mm	25.33 mm	34.87 mm	24.08 mm
	Range	16-37	17-33	20-46	18-40	20-49	17-32
	Std deviation	4.27	4.81	5.64	4.73	5.90	4.19
CYANOGENESIS FREQUENCY (from 1985 trials)		3.6 %	55.9 %	100 %	43.6 %	89 %	72.5 %
NO. OF STOLONS AT 8 WEEKS	Mean	6.38	52.59	5.47	7.02	9.54	8.61
	Range	1-21	26-96	2-11	2-23	4-30	3-32
	Std deviation	2.84	21.61	1.82	3.64	5.17	6.16

### *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.

## Choisya

Applicant: P Catt, Liss Forest Nursery Ltd, UK.

Agent in Australia: **Plant Growers Australia Pty Ltd** of Wonga Park, Victoria  
'Sundance' Application No.:89/020

## Apple (*Malus*)

Applicant: **N.V.Jomobel** of Halen, Belgium  
'Jonagored' Application No.:89/013

## Pea (*Pisum*)

Applicant: **Cebeco Handelsraad** of The Netherlands

Agent in Australia: **Pea & Grain Exporters Australia Pty Ltd**, of Two Wells, South Australia  
'Solara' Application No.:89/019

Applicant: **Rogers Brothers Seed Company** of Boise, USA

Agent in Australia: **Northrup King Pty Limited**  
'Frolic' Application No.:89/026

## Provisional Protection

### Provisional Protection granted

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

'Jonagored'	Application No.:89/013
'Kyambro'	Application No.:89/014
'Rosedale'	Application No.:89/015
'Gresham'	Application No.:89/016
'Natsukaze'	Application No.:89/017
'Franklin'	Application No.:89/018
'Solara'	Application No.:89/019
'Sundance'	Application No.:89/020
'Meipinjid' (syn Duke Meilandina)	Application No.:89/021

'Kuranga Gold Lace'	Application No.:89/022
'Grasslands Tahora'	Application No.:89/023
'Grasslands Kopu'	Application No.:89/024
'A6520'	Application No.:89/025
'Frolic'	Application No. 89/026

**Application No.:88/033**  
 Variety: 'Fantail Ultraviolet' (Lechenaultia formosa)  
 Applicant: NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants(Research) Pty Ltd.,  
 Variation: Change name to 'Ultraviolet'

## Provisional Protection Withdrawn

Provisional protection has been withdrawn under S22(b) of the *Plant Variety Rights Act 1987* for the following variety(ies) which have been sold other than for purposes of S22(b) after the application for PVR was accepted:

'Grasslands Koha' (Application No 88/035), *Ornithopus sativus* Applicant: Grasslands Division, DSIR of Palmerston North, NZ on behalf of Her Majesty the Queen in Right of New Zealand. With effect from 1/05/89 until the examination of the application is completed and PVR is granted or rejected.

## CORRIGENDA

- In Vol 2 No 1 issue (March,1989) on page 11- Flower colour for the variety 'Neshka' should read 'pale lilac background with violet reddish stripes and petal edges'
- In Vol 2 No 1 issue (March, 1989) on page 15- The name of the applicant was recorded incorrectly The correct information is  
**'Rohde Summer Navel' Application No.:89/005**  
 Applicant:Harkhill Farm,Red Cliffs, Victoria
- On Page 14 of PVJ Vol 2 No.1 of March, 1989 the closing date for the lodging of objections should read 30th September,1989.

## VARIATIONS TO APPLICATIONS

The following submissions have been made for variations to applications under subsection 19(1) of the *Plant Variety Rights Act 1987*:

**Application No.:88/032**  
 Variety: 'Fantail Starburst' (Lechenaultia formosa)  
 Applicant: NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants(Research) Pty Ltd.,  
 Variation: Change name to 'Starburst'

**Application No.:88/034**  
 Variety: 'Fantail Flamingo' (Lechenaultia formosa)  
 Applicant: NSW Department of Agriculture & Fisheries and Ornamental Native Australian Plants(Research) Pty Ltd.,  
 Variation: Change name to 'Flamingo'

**Application No.:88/003**  
 Variety: 'Young at Heart'  
 Applicant: Swane Bros Pty Ltd.  
 Variation: Add to the description... 'Young at Heart' under high temperatures and low humidity conditions will show a much deeper petal colour(RHS29B). Petal counts will also be reduced (around 28 to 48 with a mean of 36). Leaf size will be smaller under these extreme conditions. These variations in the rose were observed during an extremely hot period in October, 1988.

## OBJECTIONS

**Formal objections** (S20 of the PVR Act) against any of the applications, described under "Applications Accepted, Descriptions finalised," can be lodged by a person who:

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

A fee is payable at the time of lodging a formal objection.

**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 **31 December 1989**.

## Appendix 1

### 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 Bothriochloa	All herbage and turf grasses	
OILSEEDS	Brassica sp (oilseeds) (rape, mustard etc)	Glycine max (soybean) Helianthus annuus (sunflower)	Arachis 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;
- (j) 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.

## APPENDIX 4

### FEES

As from 1 July 1989 the following fee schedule will apply.

FUNCTION	\$
APPLICATION	350
EXAMINATION OF APPLICATION	1200
COPY OF APPLICATION	60
VARIATION TO APPLICATION	65
LODGING AN OBJECTION	70
COPY OF OBJECTION	60
CERTIFICATE OF PVR	235
ANNUAL RENEWAL FEE	235
REQUEST FOR RE-EXAMINATION (if required)	700
COMPULSORY LICENCE	120
TRANSFER OF RIGHTS	120
ISSUE OF PUBLICATIONS	7
	(first 10 page, then 50c/page)
(other than the PV Journal) OTHER WORK RELEVANT TO PVR	\$60 (per hour)

## APPENDIX 5

### PLANT VARIETY RIGHTS ADVISORY COMMITTEE (PVRAC)

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

Mrs Kathryn Adams (Chair)  
Registrar Plant Variety Rights  
Bureau of Rural Resources  
GPO Box 858  
CANBERRA ACT 2601

Professor Donald Marshall  
Waite Professor of Agronomy  
Waite Agricultural Research Institute  
University of Adelaide  
GLEN OSMOND SA 5064.  
Representative of breeders.

Mr Peter Wilson  
Manager of Wheat Research  
Cargill Seeds  
PO Box W252  
WEST TAMWORTH NSW 2340  
Representative of breeders.

Mr Rodney Field  
WMR Box 758  
ESPERANCE WA 6450  
Representative of producers.

Mr Richard Arthur  
GPO Box 388  
CANBERRA ACT 2601  
Representative of consumers.

Mr Edgar (Ben) Swane  
Director Swane Bros P/L  
Galston Road  
DURAL NSW 2158  
Representative with appropriate qualifications and experience.

Dr John Leslie  
Queensland Dept Primary Industries  
GPO Box 46  
BRISBANE QLD 4001  
Representative with appropriate qualifications and experience.

## **ORGANISATIONS OFFERING TO UNDERTAKE PVR TRIALS**

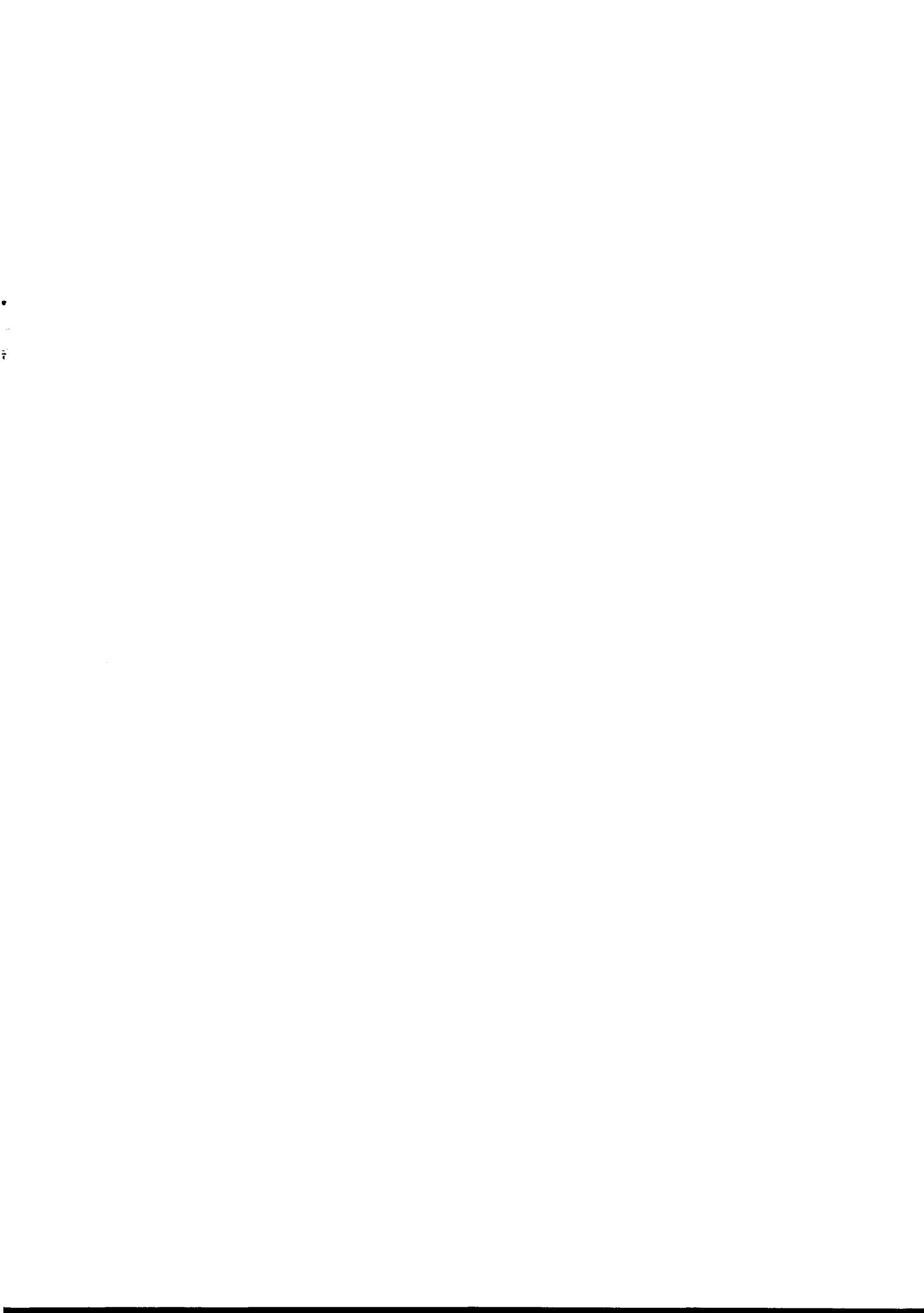
The following organisations are interested in carrying out PVR trials on behalf of applicants — the PVR Office does not accept any responsibility and is publishing the list for the convenience of applicants.

AGRITECH  
PO BOX 549  
TOOWOOMBA 4350, 076 384322  
MARY ANN LAW

AGRISEARCH  
PO BOX 972  
ORANGE 2800, 063 624539  
M J HOOD  
(also at Shepparton, Moree, Ridgehaven, Mackay, Armidale and Innisfail).

RADCLIFFE AND TILL  
42 MOSS ST  
WEST RYDE 2114, 02 8046973  
SHARON TILL

STATE DEPARTMENTS OF AGRICULTURE AND  
CSIRO MAY DO TRIALS ON A FEE FOR SERVICE  
BASIS FOR SOME SPECIES.





B89/20554  
Cat. No. 89 05427