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**EXPERIMENTAL SUMMARY**

**1989**

**R. SNOWBALL**

# EVALUATION OF TRIFOLIUM AND ORNITHOPUS SPECIES

Richard Snowball

Trial work in 1989 included the following:

- Medina:
1. Re-evaluation of Persian and Balansa clovers.
  2. Confirmation of sorted types from new collections.
  3. Regeneration of old collections.
  4. Seed increase of Persian and Balansa clovers.
  5. New Serradella collections.
  6. New Trifolium collections.

Country: Selected lines of Persian, Balansa and other Trifolium species at:

1. Green Range.
2. Manjimup.
3. Wokalup.
4. Harvey.
5. Goomalling.

## Re-evaluation of Persian and Balansa Clovers

A number of lines of these two species were grown for a second year to confirm original characterization, complete any sorting of types that may have been identified in the first year of growing, and to supplement seed stocks if quantities were insufficient for storage in the ATGRC (Australian Trifolium Genetic Resource Centre).

Source	Number of lines	
	<u>T. resupinatum</u>	<u>T. balansae</u>
<u>Donnor country</u>		
USA	92	7
<u>Naturalized</u>		
(SW Western Australia)	25	1
<u>Country of Collection</u>		
Morocco	6	-
Sicily	2	-

## Types From New Collections

In 1988 lines from five new Trifolium collections were grown for the first time. Varied types were identified and separated. In 1989 lines that possessed different types were regrown to confirm the initial sorting, collect basic agronomic data and generate adequate seed for storage in the ATGRC.

Collection code	Source	Number of lines grown	Number of species of Trifolium represented
DAM	Greece	6	5
MCD	Morocco	32	11
CFD	Cyprus	39	11
S	Sicily	82	13
RS	WA	7	5

#### Old Collections

Regeneration of seed from old Trifolium collections is a continuing programme. To date approximately 700 lines have been regenerated from a total of over 2,000. In 1989, 228 lines were successfully regenerated, while 41 lines failed to emerge.

		Number of lines regenerated			
Species	No.	Species	No.	Species	No.
affine	1	globosum	2	scabrum	2
alexandrinum	1	hybridum	10	echinatum	1
batmanicum	1	lappaceum	3	speciosum	1
boissieri	1	lugardii	1	spumosum	8
bejariense	1	medusium	1	stellatum	2
campestre	2	microdon	2	striatum	1
cernuum	2	pilulare	2	tembense	2
chilense	3	pratense	3	tridentatum	1
clypeatum	1	purpureum	1	vernum	1
eriosphaerum	1	repens	7	xerocephalum	12
formosum	6	retusum	6	cherleri	77
glanduliferum	2	ruepellianum	2	hirtum	58

#### Seed Increase

A selection of Persian and Balansa clovers was made for inclusion in field trials. These lines were grown in 4 m rows for the purpose of seed increase only. Details on this work are presented later in this report.

#### New Serradella Collections

Serradellas from five new collections were grown for the first time. Mixtures of species and types were identified and separated. Basic agronomic data was recorded and included growth habit, growth vigour, flowering time, pod yield and pod strength.

Initial number of lines/number after sorting					
Collection code	Source	<u>Compressus</u>	Species		
			<u>Sativus</u>	<u>Pinnatus</u>	<u>Perpusillus</u>
DAM	Greece	10/25	-	-	-
MCD	Morocco	10/16	3/7	2/4	-
CFD	Cyprus	2/5	-	-	-
GEH	Greece	30/59	-	2/2	-
G*	France	46/47	-	10/10	3/3

\* Requires sorting.

Maturity ranged from 98 to 170 days to first flower. Pod yield reached up to 923 g in a compressus line from Morocco from a 1 m row of 12 plants. A selection of lines has been made for assessment on the acid, wadjil soils of the eastern wheatbelt in 1990.

#### New Trifolium Collections

A number of Trifolium from two new overseas collections were grown out for the first time. Basic agronomic data was collected including growth habit, growth vigour, flowering time, seed yield and hardseed content. Sorting of species and types was also undertaken except for the Turkish collection.

Collection	Species	Initial number of lines	Number after sorting
Greece	stellatum	9	11
	cherleri	5	8
	tomentosum	2	2
	batmanicum	2	3
	spumosum	2	2
	glomeratum	1	1
Turkey	purpureum	9	
	angustifolium	12	
	hirtum	1	

#### Country Trials

A list of the lines and the species used in the trials is illustrated initially. There after, results are presented and include growth vigour ratings on all trials, and dry weight and seed yield data on some trials. Sites were selected at Green Range (wet site suited to T. balansae), Manjimup (suited to T. subterraneum), Wokalup (suited to T. repens), Harvey (sand ridge site suited to Ornithopus spp. and T. hirtum) and Goomalling (saline site). All trials consisted of replicated swards.

Trial location	Trial number	Number of reps	Sward size (m <sup>2</sup> )
Green Range	89AL26	4	2.25
Manjimup	89MC6	4	2.25
Wokalup	89W10	3	1
Harvey	89HA3	3	1
Goomalling	89NO58	4	2.25

In some cases grazing or mowing was executed on a number of reps. Data is presented for this additional treatment.

The final set of data shows growth vigour, dry weight and seed yield of lines grown at Medina for the purpose of seed increase.

TRIAL NUMBER 89HA3

ID	RATING(1-5)
	18.9
32836PUR	3.3
45856MIC	3.7
86865DES	2.2
87117PIL	1.7
CCY35PUR-A	2.0
CCY64CHE	1.3
CCY67CHE-B	1.3
CIZ1SCU	1.3
CIZ5NIG	2.3
CIZ8PAU	1.7
DALKEITH	1.7
PARADANA	2.0
TAURO	2.3
WA276RES	4.0
WA277RES	3.7
WA278RES	2.3
WA285RES	4.0
WA301RES	3.0
WA311RES	3.7
WA358RES	3.0
WA360RES	3.0
WA381MIC	3.0
WA413RES	3.3
WA416RES	2.5
WA422RES	3.2
WCS1PAU	2.7
WCS1PIL	2.2
WCT22GLM-A	2.7

PLANTING DATE MAY 89

TRIAL NUMBER 89NO58

ID	VIGOUR RATINGS(1-5)					REGEN	SEEDING
						(1-5)	(1-5)
						1.10	13.10
	1	2	3	4	5		
	-----	-----	-----	-----	-----		
	30.8	9.9	16.9	1.10	13.10		
45856MIC	3.0	2.2	4.0	5.0	5.0	3.7	3.7
KYAMBRO	1.0	2.3	2.7	0.3	0.5	4.0	2.0
MARAL	3.0	2.2	0.7	0.5	1.5	3.5	0.5
NORTHAM	1.0	1.8	3.3	2.3	3.7	3.5	2.7
PARADANA	5.0	3.0	2.7	2.5	4.5	4.5	4.3
WA276RES	1.0	3.0	2.7	2.0	3.5	2.5	2.7
WA277RES	1.0	2.7	3.0	2.0	3.5	3.5	2.7
WA278RES	1.0	2.2	3.0	2.8	4.0	4.0	2.3
WA285RES	1.0	2.0	3.0	3.0	4.0	4.7	3.0
WA301RES	1.0	2.3	3.5	3.8	4.5	4.5	3.0
WA311RES	2.0	2.8	3.0	4.0	5.0	3.7	3.3
WA349RES	2.0	3.0	4.3	2.5	3.5	3.0	2.3
WA358RES	1.0	1.7	2.0	2.5	3.5	4.7	2.3
WA360RES	1.0	1.7	2.5	3.0	3.5	3.5	2.5
WA381MIC	5.0	3.3	4.3	3.8	4.5	3.0	3.7
WA382MIC	4.0	2.7	5.0	5.0	5.5	5.3	5.0
WA413RES	3.0	2.7	4.0	4.0	4.0	4.0	2.3
WA416RES	1.0	2.7	2.5	2.0	3.5	2.5	3.0
WA422RES	1.0	2.7	4.3	4.0	3.5	2.3	1.0
WA436IST	1.0	1.7	4.0	3.8	4.5	3.3	2.7
WCS12RES-B	2.0	1.3	2.5	3.0	3.5	2.5	1.7

REGEN = REGENERATION AFTER CUTTING

SEEDING = PRODUCTION OF SEED HEADS

PLANTING DATE 22.5.89

REP1 CUT 16.9

REP2 UNCUT

REPS3,4 CONTINUOUSLY GRAZED TO FLOWERING



MEDINA SEED INCREASE PLOTS (UNREPLICATED 4M ROWS)

ID	VIGOUR RATINGS		DRY.WT	SEED.WT
	(1-5)		(%)	(%)
	WINTER	SPRING		
	14.8	23.10		
45856MIC	2.5	4.0	64	80
CIZ1RES-B	2.0	4.5	86	24
KYAMBRO	2.0	4.5	96	20
MARAL	3.0	4.0	-	12
PARADANA	2.5	3.0	-	44
WA217RES	2.0	4.5	62	18
WA262MIC	2.0	4.5	68	42
WA264MIC-A	2.0	4.5	64	24
WA276RES	4.0	4.5	98	90
WA277RES	4.0	5.0	100	72
WA278RES	3.0	4.0	82	50
WA285RES	3.0	4.0	72	56
WA301RES	3.0	4.0	78	54
WA311RES	3.0	4.5	82	48
WA312RES	4.0	5.0	94	6
WA316RES	2.5	4.5	82	42
WA338RES	3.5	4.5	90	22
WA349RES	4.5	4.5	88	84
WA358RES	2.0	3.5	42	40
WA360RES	1.5	3.0	44	40
WA381MIC	2.5	4.0	54	62
WA382MIC	2.5	4.0	66	46
WA413RES	3.0	4.0	74	100
WA416RES	2.0	3.5	62	58
WA422RES	4.0	4.0	80	48
WCS11RES	1.5	3.5	56	3
WCS12RES-A	2.0	4.0	62	5
WCS12RES-B	2.5	4.5	92	19
WCT45RES	2.0	4.0	80	16

PLANTING DATE 11.5.89