



1978

## Pasture species investigations, high rainfall area, 1978.

D A. Nicholas1978

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Department of Agriculture  
Western Australia

SUMMARY OF RESULTS

PASTURE SPECIES INVESTIGATIONS

HIGH RAINFALL AREA

1978

D.A. Nicholas  
Plant Research Division

## Contents

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5. Trikkala evaluation trial - Mt Barker Research Station - see also report of D.J. Gillespie

5. Pasture growth was poor for most of 1978. The late break to the season was followed by a very wet winter. Most plots remained very hard grazed until mid September. The season terminated abruptly in late October. By that time growth on most plots was average or below average for a normal season.
6. Pasture growth during late May - July was so slow on plots 30, 31 (Daliak and Geraldton at 9.9 sh/ha) that hand feeding was necessary. On P. 30 (Daliak) period of hand feeding was 29th May to 22nd August, while on P 31 (Geraldton) from 29th May to 1st August. A total of 220 kg and 150 kg of hay was fed to plots 30 and 31 respectively. No other hand feeding was undertaken.
7. By mid September the later maturing cultivars had produced more top growth than the earlier maturing cultivars.
8. Clover content remained high. The Dinninup plots remain essentially pure clover. The Dwalganup plots containing approximately 50% Dinninup also are high in clover content. Other cultivars contain 54% - 65% clover. Weeds (mainly capeweed) make up a low proportion of the pasture.
9. Sheep bodyweights declined until late June at the low stocking rate and late July for the high stocking rate. Gains were made from August to mid November by when the pasture had dried off.
10. At the low stocking rate Woogenellup maintained weights better for most of the season. Dinninup and Midland were amongst the poor performers.
11. At the high stocking rate Midland maintained highest weights (c.f. low stocking rate). Seaton Park and Woogenellup also maintained weights well. Daliak and Geraldton performed poorly at the high stocking rate, mainly because of the poor soil type of plots 30 and 31.
12. Note - Dwalganup plots are not included in the bodyweight graphs due to Dinninup contamination.
13. The whole trial will be cropped in 1979.

68NA1/2303 EX

Clover Seed yield and germination 24.1.78

	Clover Seed - kg/ha		% germination		
	Pasture 1977	Crop 1977	Pasture 1977	Crop 1977	Av.
Geraldton	539	246	15	11	13
Uniwager	579	191	23	8	15
Dwalganup	833	266	15	14	14
Daliak	606	165	18	7	12
Seaton Park	548	165	27	13	20
Dinninup	778	311	14	10	12
Woogenellup	380	28	36	29	32
Midland	655	207	24	12	18
Average	615	197	21	13	17

	Clover Plant Density 7.6.78 - No. sq. dm.	
	Pasture	Crop
Geraldton	18.3	19.1
Uniwager	17.9	12.2
Dwalganup	25.4	18.0
Daliak	39.6	12.2
Seaton Park	14.9	5.4
Dinninup	29.4	20.2
Woogenellup	8.6	2.8
Midland	19.0	13.4
Average	21.6	12.9

68NA1/2303 EX

Pasture composition and yield 23.10.78

Cultivar	Botanical Composition - %						Total Yield - kg/ha		
	7.4 sh/ha			9.9 sh/ha					
	CL	GR	WE	CL	GR	WE	7.4	9.9	Av.
Geraldton	65	30	5	65	28	7	1805	700	1252
Uniwager	55	42	3	65	20	15	2350	1200	1775
Dwalganup	80	17	3	82	15	3	2535	2070	2302
Daliak	60	38	2	68	30	2	1730	1305	1518
Seaton Park	62	28	10	60	25	15	3165	2590	2878
Dinninup	100	-	-	97	2	1	3080	2180	2630
Woogenellup	55	28	17	65	20	15	3455	3020	2238
Midland B	55	38	7	55	30	15	1910	2380	2145
	66	28	6	70	21	9	2504	1931	2217

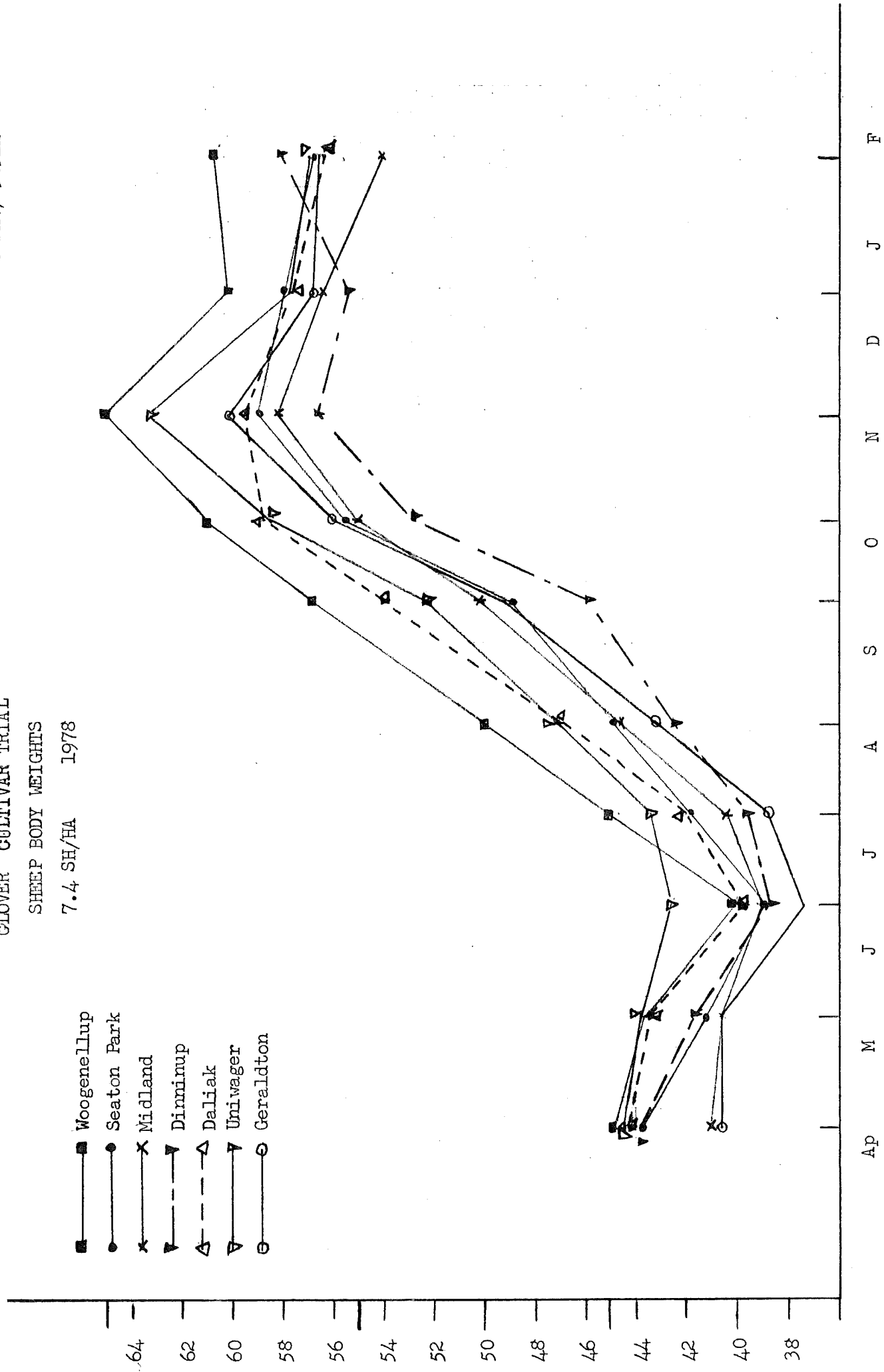
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CLOVER CULTIVAR TRIAL

SHEEP BODY WEIGHTS

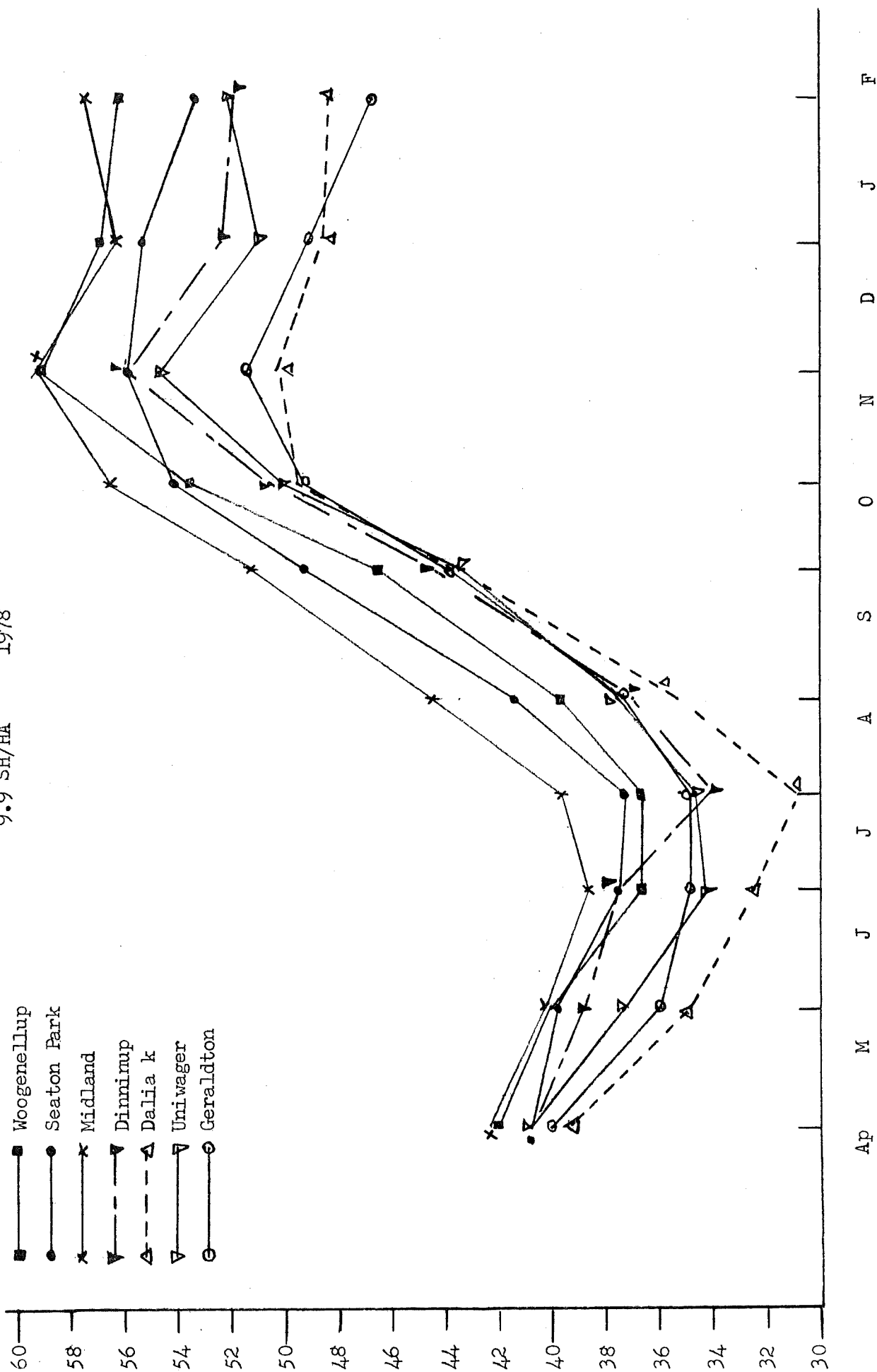
7.4 SH/HA 1978

- Woogenellup
- Seaton Park
- × Midland
- ▼ Dinninup
- △ Daliak
- ▽ Uniwager
- Geraldton



68NA1/2303EX

CLOVER CULTIVAR TRIAL  
SHEEP BODY WEIGHTS  
9.9 SH/HA 1978



6. An advantage in animal bodyweight increase in favour of the cocksfoot treatment was again shown. However the advantage was only clear on one replication. On the other replication animal performance was similar throughout the year despite the large differences in botanical composition.

Note - the trial is carried out jointly with the Manjimup District Office.

Plant Assessments - 1978 - 72MN5/3104 EX

Dry Matter Yield - kg/ha

	5.7.78	5.9.78	2.11.78
Annual	519	1214	2585
Cocksfoot	519	1022	2866

Botanical composition - %

	5.7.78				5.9.78				2.11.78			
	CL	WE	AG	Dg	CL	WE	AG	Dg	CL	WE	AG	Dg
Annual	17	67	16		25	55	20		30	47	23	
Cocksfoot	40	6	23	31	53	10	26	11	49	3	38	10

CL = clover + lotus  
Dg = cocksfoot

AG = annual grass  
WE = weed, mainly  
capeweed

Botanical Composition % of plots conserved in spring 1977

		5.7.78				5.9.78			
		CL	WE	AG	Dg	CL	WE	AG	Dg
Annual - left standing	1977	7	44	49		21	40	39	
hay cut	1977	12	77	11		19	65	16	
Cocksfoot - left standing	1977	5	-	33	62	9	1	56	34
hay cut	1977	48	8	16	28	66	2	16	16

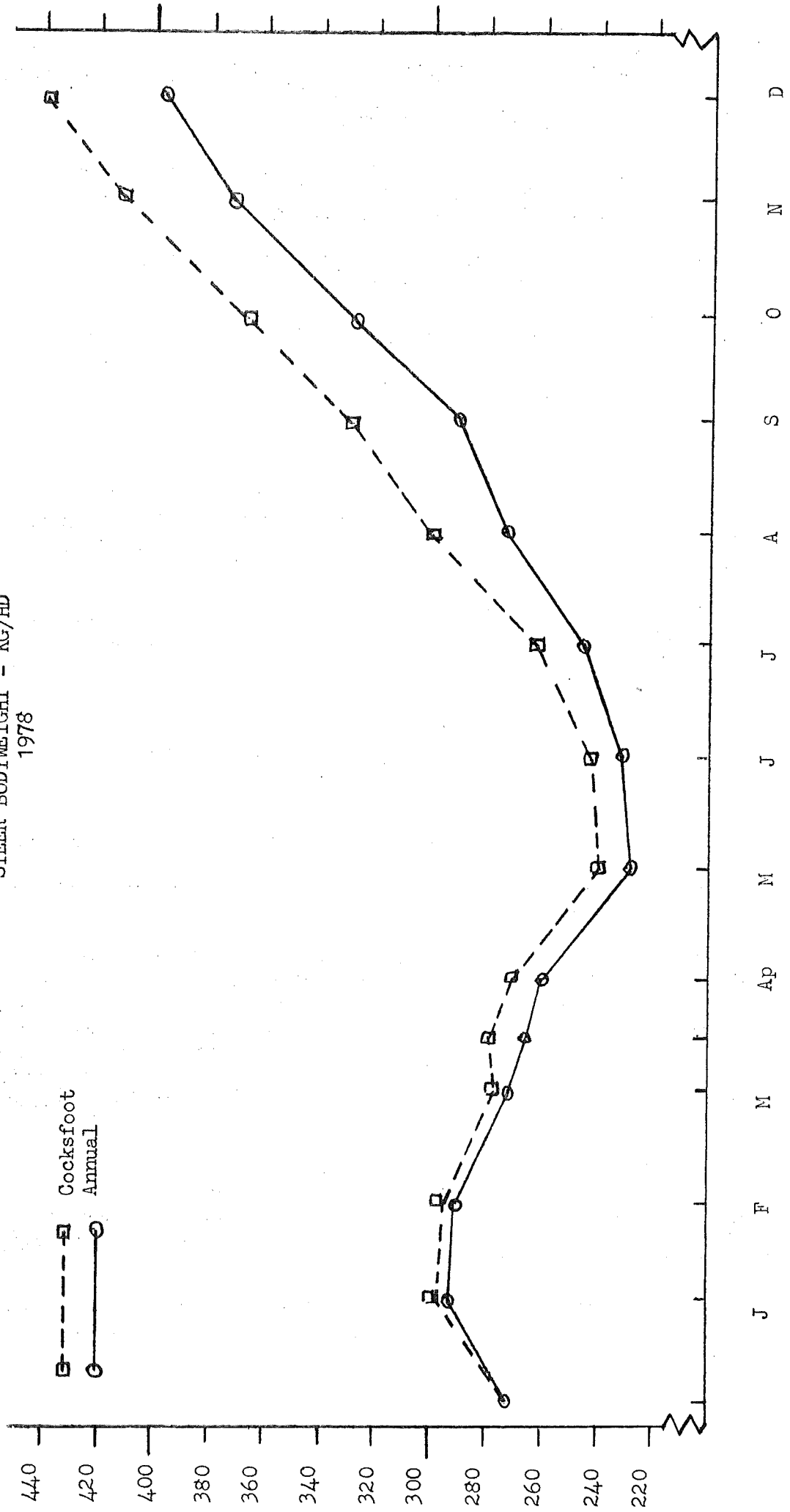
Animal Assessment

	Annual	Cocksfoot
Liveweight gain 20/12/77 to 12/12/78	137	179
Garcass weight kg/hd	193	218



72MN5/3104 EX

PERENNIAL VERSUS ANNUAL GRASS GRAZING TRIAL  
STEER BODYWEIGHT - KG/HD  
1978



## Botanical Composition - % - 9.11.78

Plot	Treatment	An Cl	P Cl	Lotus	A. grass	Kikuyu	Weeds
3	Deteriorated Woogenellup + Yarloop	24		8	64		4
5	Resown annual clovers + Kikuyu	21		23	41	11	4
6	Resown annual clover + Kikuyu	25		31	30	14	
8	Perennial clover	11	11	18	57		3
1	Larisa clover	72		2	26		-
7	Larisa clover	73		4	21		2

An Cl = annual clovers

P Cl = perennial clover

77AL22/3423 EX  
Healy,  
Wellstead

Clover Cultivar Trial - 1978

Cultivar	Seed - 77/78		Density - No/dm <sup>2</sup>		Herbage - kg/ha		
	kg/ha	mgm/seed	14.3	5.7	9.8	14.9	9.11
Yarloop	705	9.69	32	34	168	1582	2412
Daliak	620	4.68	21	30	113	924	1631
Trikkala	910	7.94	39	43	133	1634	2343
Seaton Park	935	5.97	35	33	194	1427	2394
Dinninup	1090	4.69	17	35	116	1242	2275
Esperance	725	4.84	11	20	44	868	2562
Woogenellup	1070	7.77	18	28	127	1163	2456
DMN25	970	5.18	36	50	87	1284	2456
HND7.4	1015	5.42	24	46	44	1087	2606
Mt Barker	855	5.30	23	42	79	1114	3381
					111	1302	2452

Sampling 9/8 and 14/9 - rotary mower to 20 mm.

9/11 - shearing handpiece to ground level.

Title : Clover Cultivar Evaluation Trials

Location : Esperance District.  
77ES27 - R.L. Stead, Dalyup  
77ES28 - E.L.D., Coomalbidgup  
77ES29 - R. Overheau, Mt Howick

Aim : To measure the vegetative growth and seed production of a number of clover cultivars sown onto old land of the Esperance plain.

Experimental : 8 cultivars x 6 replications.  
All trials sown dry into paddocks cropped in 1976. Trials hand sown in late April prior to start of season - a late break. Clover seeding rate was 120 kg/ha. Fertilizer used was 400 kg/ha of Mix B.

Results : Seed measurements  
Clover plant density  
Herbage yield

Comments:

1. Trial 77ES28 at Coomalbidgup was abandoned after germination in 1978 due to very low plant density.
2. The poor seasonal conditions of 1977 were reflected in low seed yields - particularly of the later maturing Woogenellup. Daliak produced most seed. Trikkala, while not yielding well at least did slightly better than Yarloop. Similarly Esperance easily out produced Woogenellup, Yarloop and Seaton Park.
3. At germination Daliak had highest density and at the two sites 77ES27, 29 was equivalent to sowing 75-100 kg/ha of seed. Although density of Esperance was only 60% that of Daliak was sufficient for a reasonable pasture and was higher than that of Seaton Park.
4. Pasture growth in 1978 was slow. Trial 77ES27 was accidentally grazed prior to August sampling. All plots common grazed during May and then fenced off.
5. At Mt Howick (77ES29) Guildford D and Daliak gave best early clover growth. In spring Guildford D and Esperance were best. The performance by Yarloop was poor throughout.
6. At Dalgup (77ES27) growth was much better overall. The later maturing cultivars outperformed the early ones. The highest clover content (65%) was maintained by Dinninup.
7. Disease was again not observed at either site.

Title : Clover Cultivar Evaluation Trial (77D5/3423 EX)

Location : Denmark Research Station

Aim : To measure the vegetative growth and seed production of a number of clover cultivars sown on old land.

Experimental : 12 cultivars x 4 replications.  
Trial handsown on 2/5/77 at a seeding rate of 75 kg/ha viable seed. Area used was a degenerated pasture with a history of clover scorch and root rot. Normal cultivation techniques used to prepare seed bed. Fertilizer used was 300 kg/ha of 3:2 super potash at seeding with a further 250 kg/ha in September. In March 1978 300 kg/ha of 3:2 super potash and in August 200 super + 100 potash.  
  
Soil type = Plantagenet peaty sand.

Results : Seed measurements  
Clover plant density  
Herbage yield and botanical composition

Comments:

1. Good seed production from 39327YB, Larisa, HND7.1 and MND7. Poor seed production from Mt Barker and Woogenellup.
2. Season finally broke in late April. Root rot evident, particularly on Woogenellup and Mt Barker. Also it appeared to be attacking the HND series. Larisa was outstanding at germination compared with other cultivars. Density of other cultivars generally poor.
3. Plots generally dominated by weedy species - flatweed, lotus. Only Larisa, MND7, 39327YB and DMN4.5 were able to maintain a reasonable clover content.
4. Following October sampling and trimming the plots failed to recover - a period of hot dry weather followed sampling. Plots not sampled in November as only Larisa, 39327YB, DMN5 and MND7 had made any recovery. Remaining plots were being overrun by lotus.
5. Some clover scorch on plots and surrounding paddock.

Title : Clover Cultivar Evaluation Trial (78DE1/3640 EX)

Location : S. Ravenhill, Tingle Dale

Aim : To measure the vegetative growth seed production of a number of clover cultivars sown on old land.

Experimental : 12 clovers x 4 replications.  
Trial handsown on 10/5/78 at a seeding rate of 75 kg/ha. Area used had been sown to clover for 10 years, but had deteriorated through clover scorch and root rot. Cropped in 1967 to spring Ss a oats. Pasture sprayed, cultivated and handsown using a rake to cover seed. Fertilizer - 40 kg/ha Mix B, 75 kg/ha muriate of potash. In early September a further 250 kg/ha of 3:2 super potash. No grazing.  
Soil type - Plantaganet peaty sand.

Results : Plant density at germination  
Herbage yield

Comments:

1. After seeding site severely waterlogged for two months. Plant density at 15/6/78 was lower than normal as a result. All cultivars initially had poor root growth and top growth.
2. Growth up to September was slow. One selection - a Yanninicum with large seeds 70088B - showed out during July and August. By mid-September two crossbreeds DMN25 and Trikkala were also making better growth.
3. During September - October rapid growth took place - MND7, DMN25, Larisa and 70088B. Woogenellup not surprisingly, was very poor.
4. The poor early growth was largely due to the planting coinciding with a very wet period. Pasture surrounding the trial, mainly Trikkala sown dry, made good growth during winter, and by September yielded 4000 kg/ha of 90% clover.
5. By mid January a large germination of clover was observed on plots of 70088B - it appears to lack a suitable level of dormancy.

Title : Clover Cultivar Evaluation Trial (78MN5/3640 EX)

Location : Manjimup Research Station

Aim : To measure the vegetative growth and seed production of a number of clover cultivars sown on old land.

Experimental : 12 clovers x 4 replications

Trial handsown on 17/5/78 at a seeding rate of 50 kg/ha. Area used had been sown to Dinninup and Mt Barker in 1971. Pasture cultivated, sprayed, cultivated, sown, raked and rolled.

Fertilizer - 400 kg/ha of Mix B, 75 kg/ha muriate of potash.

Soil type - karri loam

No grazing.

Results : Plant density  
Herbage yield

Comments:

1. Good establishment of all cultivars - a slight (5%) infection by eelworm noted.
2. All plots remained almost pure clover throughout the season, and a good control of existing clover was obtained.
3. Growth on most cultivars was good by early September - 39327YB was an exception.
4. Spring growth was very good with the later maturing cultivars Larisa and 39327YB being outstanding.
5. Early growth of potential Woogenellup replacements (GD series) was good and spring growth was equal to Woogenellup.

Title : Clover Cultivar Evaluation Trial (78BU15/3640 EX)

Location : N. McDonald, Jindong

Aim : To measure the vegetative growth and seed production of a number of clover cultivars sown on old land.

Experimental : 12 clovers x 4 replications.  
Trial handsown on 23/5/78 at a seeding rate of 50 kg/ha. Area had been sown to clover for 10 years. After the "break" the pasture was cultivated, sprayed and cultivated before sowing and raking.  
Fertilizer - 400 kg/ha of Mix B + 75 kg/ha muriate of potash.  
Extra fertilizer - 250 kg/ha of 3:2 super potash applied in early September.  
No grazing.  
Soil type - 1 m yellow loamy sand.

Results : Plant density  
Herbage yield

Comments:

1. Good establishment obtained. Good control of existing clover but some grass and capeweed remained.
2. Unlike most other areas the Jindong area had a dry June/July. Growth initially was slow. Larisa in particular was very poor.
3. By September the GD56 series had produced well.
4. Growth during September/October was very good with most cultivars producing over 3000 kg/ha of clover in the 8 week period.
5. Neither root rot or clover scorch had any apparent effect on the trial.



Title : Clover Cultivar Evaluation Trial (78BR16/3640 EX)

Location : K. & D. Stacey "Jalbarragup", Darradup

Comment:

The trial was sown on 18/5/78 in a similar manner to trials 78BU15, 78DE1 and 78MN5. A satisfactory germination was obtained but growth throughout the season was poor. Also the trial was grazed by cattle during June. Following a dry period in October all plots wilted and failed to recover. Although root rot disease was observed in the surrounding paddock it did not appear to affect the trial area. Clover scorch did not appear to affect the trial.

Because of the sudden finish to growth, seed production will be low or negligible and the trial will almost certainly be abandoned.

Title : Trikkala Evaluation Trial  
Location : Mt Barker Research Station  
Aim & Pasture  
Results : see report of D.J. Gillespie  
Results : Animal bodyweight graph  
Greasy wool production

Comments:

1. In 1977 all sheep were removed from the trial on 25/5/77 due to feed shortage - particularly on the pure Yarloop plots. Grazing at the full rate of 12 sh/ha was recommended on 22/8/77.

Following good spring conditions in 1977 extra grazing pressure was applied to all plots from 16/2/78 to 8/5/78 (stocking rate increased to 16 sh/ha).

2. A fitful start to the 1978 season was experienced with approximately a 25% of full germination in mid March, the main germination in early May, and a further small germination in mid May. Heavy rain in June and July resulted in much flooding. By late August growth on most plots was good and the stocking rate was increased to 16 sh/ha. The site has been maintained.
3. The initial draft of sheep were allocated on a bodyweight basis only. A new allocation was made on 5/12/78 on a body and wool weight basis.
4. The wool data recorded must be viewed with caution. For 1977 sheep were off plots for a period, no allocation on wool weight basis, only three sheep/plot, no replication, winter growth of Yarloop poorer than expected. However, from the results it does appear that sheep grazing Trikkala are producing more wool than those on pure Yarloop or high % Yarloop pastures.
5. Bodyweight of sheep on pure Trikkala have been consistently higher than those on pure Yarloop and generally than those on mixture plots.
6. Of particular note were the more rapid gains on Trikkala during the seven week period ending 7/8/78 - rate of gain was three times that on pure Yarloop. Growth by Trikkala at that time was much better than by Yarloop.
7. Although sheep on plots sprayed with Benlate compared with not sprayed, averaged about 2 kg heavier from February to July, thereafter the difference was negligible. Despite clover scorch being present on unsprayed plots in the spring of 1978, pasture production was more than adequate.

76MT3/309CEX

TRIKKALA - YARLOOP EVALUATION TRIAL  
SHEEP BODYWEIGHTS - KG/ HD

1978

