1989

Replicated single row evaluation.

C. M. Saunders

B) REPLICATED SINGLE ROW EVALUATION

TRIAL NUMBER: 89AB12 EX FILE: 6201

LOCATION: Great Southern Agricultural Institute - farm Paddock B15

SOIL TYPE: Grey loam (pH = 6, in water)

SOWING DATE: 8 - 9/6/89

This trial was of similar design to the single row evaluation, except four replications and pesticide treatments were also included.

However, the trial had to be abandoned due to severe phytotoxic responses seen in the medics due to repeated spraying of 'Lorsban' (used at recommended rates). Curling and a purple colouring of the leaves were seen as well as unusual growth habit. If plants survived to an advanced stage, they showed a mixed leaf canopy, i.e.: one canopy 4-5 centimetres from base of plant, and another at 11-12 centimetres.

It is intended to repeat this work in 1990, bulk seed where possible and to eventually assess these lines, under such conditions, in large plots.

C) PLOT EVALUATION

In 1988, several South Australian medic lines of varying blue-green aphid tolerance, were sown in large plots to evaluate their performance in terms of dry matter production, seed yield, regeneration and nitrogen contribution to a following cereal crop.

TRIAL TITLE: Pasture Species Evaluation.

TRIAL NUMBER: 88KA93 EX FILE: 4730

LOCATION: Gnowangerup (P. Paterson)

SOWING DATE (pasture): June 1988 SEEDING RATE: 15 kg/ha

FERTILIZER (pasture): 150 kg/ha superphosphate, 50 kg/ha potash

SOWING DATE (crop): 25/5/89 SEEDING RATE: 60 kg/ha (Kulin)

FERTILIZER (crop): 20, 40 or 80 grams of urea on appropriate plots.

RESULTS:

Table 2:

Line	Density ($plants/m^2$)	Dry Matter (17/10/88) (t/ha)	Days to Flower
M. polymorpha			
Santiago	54	3.11	82
Circle Valley	86	3.01	81
2584	84	2.97	101
5666	82	3.21	108
5665	77	3.10	97
4229	109	2.82	101
5563	75	3.17	96
5572	68	3.23	82
5527	109	3.23	110
9615	59	2.73	83
4250	78	3.43	113
4188	91	3.11	80
5552	90	2.88	79
10693	87	3.34	112
M. truncatula			
Sephi	52	3.14	107
Jemalong	109	4.13	117
Paraggio	93	4.13	117
M. murex			
Zodiac	70	3.07	130
3172	96	3.02	99
T. subterranean			
Northam	34	3.11	89
M. scutellata			
Sava	61	4.46	98
M. littoralis x *M. truncatula*			
Z243	75	3.27	112
Z244	68	3.09	104
Z115	54	2.98	107
Z188	59	3.44	111

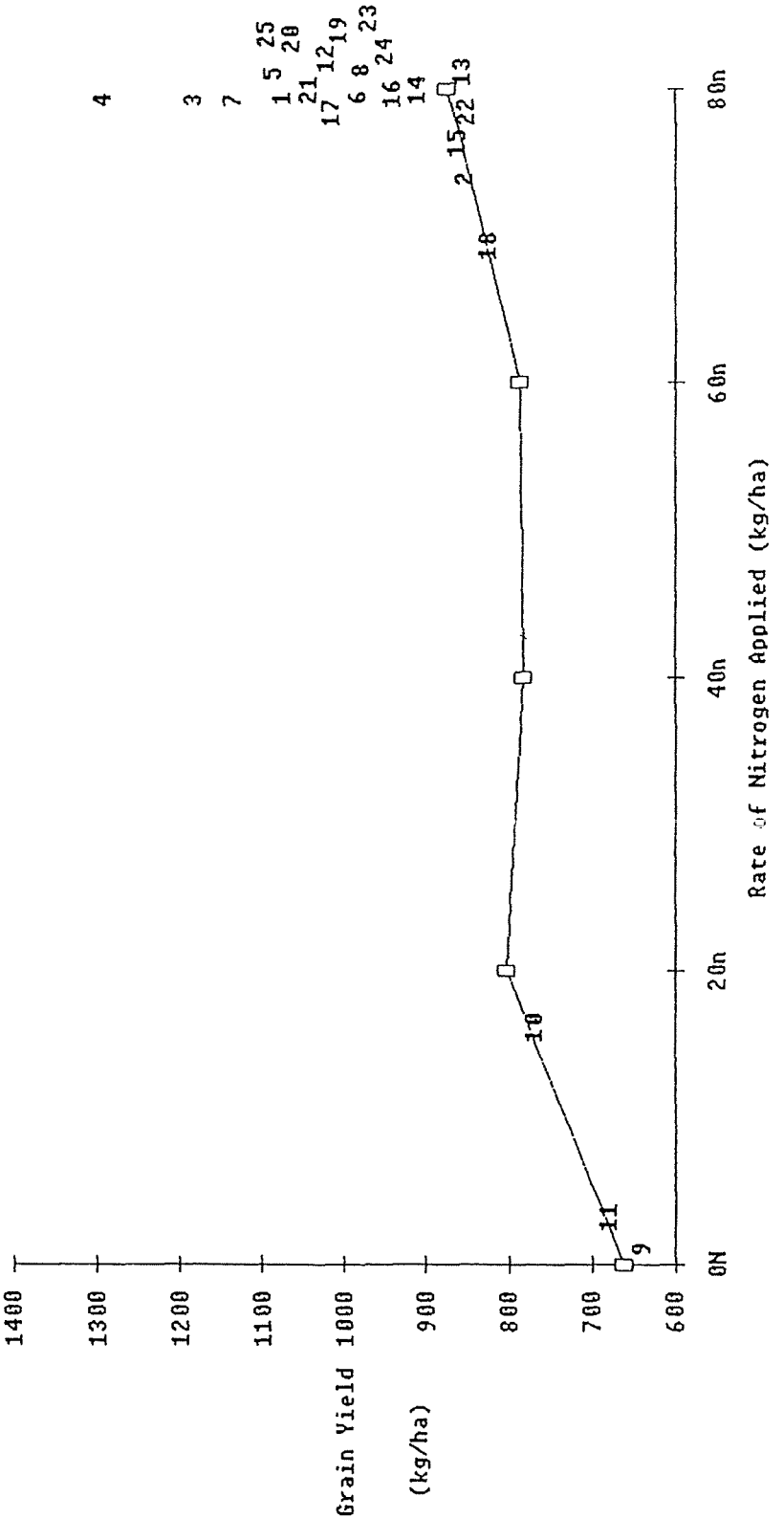
Table 3:

Line	1988 Seed Yield kg/ha	1989 Seed Yield kg/ha
M. polymorpha		
Santiago	913	468
Circle Valley	550	734
2584	760	286
5666	422	557
5665	796	573
4229	735	348
5563	798	774
5572	1029	712
5527	580	756
9615	800	596
4250	533	416
4188	1028	436
5552	894	439
10693	353	471
M. truncatula		
Sephi	352	291
Jemalong	205	552
Paraggio	335	502
M. murex		
Zodiac	89	389
3172	342	572
T. subterranean		
Northam	232	238
M. scutellata		
Sava	375	577
M. littoralis x *M. truncatula*		
22343	173	298
Z244	541	292
Z115	364	714
Z188	438	620

Table 4:

Line	Grain Yield (kg/ha)	Key to Figure 5	Nitrogen replacement (kg/ha)
M. polymorpha			
Santiago	1074.82	1	> 80
Circle Valley	863.71	2	76
2584	1198.99	3	> 80
5666	1326.34	4	> 80
5665	1071.90	5	> 80
4229	969.89	6	> 80
5563	1104.23	7	> 80
5572	993.25	8	> 80
5527	644.21	9	< 20
9615	777.95	10	16
4250	683.59	11	3
4188	999.70	12	> 80
5552	878.65	13	80
10693	904.83	14	> 80
M. truncatula			
Sephi	866.06	15	77
Jemalong	928.00	16	> 80
Paraggio	976.64	17	> 80
M. murex			
Zodiac	830.41	18	20
3172	965.56	19	> 80
T. subterranean			
Northern	1092.95	20	> 80
M. scutellata			
Sava	1060.62	21	> 80
M. littoralis x *M. truncatula*			
Z243	879.96	22	79
Z244	999.99	23	> 80
Z115	927.49	24	> 80
Z188	1082.78	25	> 80

Figure 5:


Nitrogen Response Curve - 1989
Grain Yield (kg/ha)
1400
1300
1200
1100
1000
900
800
700
600
0N
20n
40n
60n
80n
Rate of Nitrogen Applied (kg/ha)

COMMENTS:

Establishment was generally good for all lines. There was little difference in dry matter production of M. polymorpha lines, however, Jemalong, Paraggio and Sava produced about 1.0 t/ha more dry matter.

In 1988, seed yield were generally good, in particular the M. polymorpha lines 5572, 4188 and Santiago yielding 100-200 kg/ha more than other lines. Zodiac yielded poorly, most likely due to insects.

In 1989, the majority of the seed yields were reduced due to the cropping phase, however, yields were still very good indicating there was a good seed reserve coming out of crop into the pasture phase.

In the cropping phases, cereal yield from the medic plots was related to bag nitrogen cereal yields as presented in Table 4 and Figure 5. The results suggest that either medics were contributing more than the equivalent of 80 kg N/ha (applied at the beginning of the season), or that factors other than nitrogen contribution to yield were involved. These factors may include:

* medics may provide a source of organic matter
* increase soil friability
* disease break due to better grass control
* or that the medics may provide a slow-release form of nitrogen during the growing season.

Grain nitrogen results were not available at the time of report writing.

Trial will be terminated June, 1990