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# Field crop and pasture experiments

P. McR. Wood

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## Recommended Citation

Wood, P M. (1977), *Field crop and pasture experiments*. Department of Agriculture and Food, Western Australia, Perth. Report.

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DEPARTMENT OF AGRICULTURE  
Western Australia

EXPERIMENTAL SUMMARY 1977

FIELD CROP AND PASTURE EXPERIMENTS



P. McR. Wood  
Plant Pathologist  
Plant Research Division

## BLACK SPOT OF PEAS

(Ascochyta/Mycosphaerella complex)

Aim : To evaluate seven different seed treatments in small plots at South Perth for control of Ascochyta seed-borne infection. Two sources of Ajax seed were used - one with a seed infection level of 3.5% and one "clean". Seedlings were examined for signs of infection.

### Treatment

	<u>Yield (kg/plot, dry wt)</u> <u>Mean of 3 reps.</u>
1. Untreated, infected seed	0.92
2. Infected seed, 0.1% captan	1.09
3. As 2 plus 0.2% Benlate	1.15
4. As 2 plus 0.4% Benlate	0.91
5. Infected seed, 0.2% Benlate	0.84
6. Infected seed, 0.4% Benlate	0.91
7. Clean untreated seed	0.81

Results : The disease did not appear, even on untreated (infected seed) plots probably due to the dry season.

### COMMENTS

There was no treatment effect on yield at the 5% level of significance indicating that in the absence of disease, Benlate did not have any deleterious effects.

SCLEROTINIA AND PHOMOPSIS INFECTION  
OF LUPINS

Experiment : 77MT41

Location : Mt Barker Research Station, near old infected site.

Aim : To assess lupin cultivars for susceptibility to Sclerotinia and Phomopsis infection.

Results : Levels of Sclerotinia infection assessed three weeks before harvest are shown below. Phomopsis results are not yet available.

Cultivar	Sclerotinia infection (% of plants, means of 6 reps.)	Yield (kg/plot, means of 6 reps.)
Marri	1.43	20.0
Uniharvest	0.30	14.5
Unicrop	0.29	14.9
Ultra	9.91	7.9

COMMENTS

These results confirm last year's findings, i.e. Ultra is highly susceptible to infection, mainly of the pod. The poor yield of Ultra compared with *L. angustifolius* is attributed to a combination of factors, including disease, and poor germination, with subsequent weed invasion.

Also, as with last year's trial, Marri was the more susceptible of the three *L. angustifolius* cultivars. Infection on these was mainly confined to the stem, although some pod infection was noted.

RESISTANCE OF LUPINS TO PHOMOPSIS

In association with Dr J. Hamblin, Plant Breeder, *L. angustifolius* breeding lines were assessed for Phomopsis infection in November and December at three sites. Replicated plots were rated visually for infection on a 0-5 scale. Three different maturity groups were used. There seemed to be little effect on levels of infection, so results have been pooled. Taking the lupinosis danger level as 1.70 or higher, encouraging levels of resistance were found, although there was some site variation. Results are shown in the table below.

Range of Phomopsis infection means  
for single plant selections

Breeding line	Avondale	Mt Barker	Wongan Hills
70A48	1.00 - 2.00	0.50 - 1.00	1.25
70A59A	2.50 (1)		1.00 (1)
70A61	1.25 - 1.75		0.75 - 1.25
70A62	0.50 - 1.75		0.50 - 1.50
P22612	2.25 (1)		1.00 (1)
21255	1.25 (1)		
71A19	1.75 (2)	1.75 (2)	1.00 (2)
71A20	1.20 - 1.50 (2)		
71A29	1.75 (3)		
71A31	1.00 - 2.00		0.75 - 1.75
71A33	1.50 - 2.50		0.25 - 1.25
71A35	1.50 - 2.50		0.75 - 2.00
71A42	1.25		0.50 - 1.25
71A47	1.25 - 2.25	1.00 - 1.50	1.25 - 1.75
72A02	1.75 (2)	1.50 (1)	1.50 (1)
72A03	1.25 - 2.50 (2)	2.50 - 3.00 (3)	1.75 - 2.00 (2)
72A04	1.00 - 2.25	0.75 - 2.50	1.00 - 1.75
72A07	0.50 - 2.75	0.50 - 2.50	1.00 - 2.00
72A08	0.75 - 2.75	0.50 - 2.50	0.87 - 2.00

Breeding line	Avondale	Mt Barker	Wongan Hills
72A09	1.00 - 2.50	1.50 (1)	1.00 (1)
72A13	2.5 (1)		
72A21	1.00 - 2.00		1.25 - 1.50 (2)
72A23	1.25 - 2.25	0.50 - 2.00	1.00 - 1.75
72A24	2.00 - 2.50		0.75 - 1.50 (2)
72A25	1.5	1.00 - 2.00	1.00 - 1.50
72A14 - 1	1.75 - 2.75	2.00 - 3.50 (2)	1.25 - 1.75
- 2	1.50 - 2.50	3.00 (1)	1.25 - 2.00
72A15 - 3	1.50 - 2.00	1.50 - 3.00	1.00 - 2.00
- 6	1.25 - 2.25	2.00 - 4.00	1.00 - 1.50
-10	1.75 - 2.50	1.50 - 3.50	1.00 - 1.75
-11	2.50 - 2.75 (2)	3.00 - 3.50 (2)	1.25 - 1.75 (2)
Uniharvest	1.00 - 2.50	0.75 - 1.75	1.00 - 2.00
Unicrop	1.50 - 3.00	0.50 - 2.00	1.50 - 2.00
Marri	1.50 - 2.50	2.00 - 3.00	1.25 - 1.75

- (1) One selection only  
(2) Two selections only  
(3) Three selections only.