1980

Blackleg disease of rapeseed, loose smut of barley, foiliage diseases of sub-clover.

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SUMMARY OF EXPERIMENTAL RESULTS 1980

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BLACKLEG DISEASE OF RAPESEED

CONTROL OF SEEDLING INFECTION

Aim

To test the effectiveness of the fungicide EL 228 in controlling blackleg (*Leptosphaeria maculans*) seedling infection and in controlling pre and post emergence damping off.

Locality

Mt Barker Research Station (80 MT 36)

Treatments

1. Wesreo - no seed treatment.
2. Wesreo - 0.1% ai EL 228 seed treatment
3. Wesreo - 0.5% ai EL 228 seed treatment
4. Tower - no seed treatment
5. Tower - 0.1% ai EL 228 seed treatment
6. Tower - 0.5% ai EL 228 seed treatment

Assessments

Plots were assessed for the level of cotyledon infection in mid-July. Harvest yields were recorded on 29/12/80.

Results & Comments

Cotyledon infection in all plots was very variable, ranging from 5 to 20% of plants with at least one cotyledon showing blackleg lesions. There were no apparent differences between treatments in relation to cotyledon infection.

There were no obvious effects of treatments on plant stand densities.

Harvest results are shown in the attached Table 1.

Treatment	Average Yield kg/ha (Av. 4 reps.)
1. Wesreo - no seed treatment	609
2. Wesreo - 0.1% ai EL 228 seed treatment	518
3. Wesreo - 0.5% ai EL 228 seed treatment	551
4. Tower - no seed treatment	450
5. Tower - 0.1% ai EL 228 seed treatment	506
6. Tower - 0.5% ai EL 228 seed treatment	523

LOOSE SMUT OF BARLEY

FUNGICIDAL CONTROL OF LOOSE SMUT IN BARLEY

Aim

To test the effectiveness of various fungicide pickle formulations for control of loose smut in barley.

Localities

Mt Barker Research Station (80 MT 35) and Narrogin (80 NA 37).

Treatments

1. Low smut seed infection - no treatment
2. High smut seed infection - no treatment
3. High smut seed infection + Furavax dust 7.5 @ 100 g/100 kg
4. High smut seed infection + Furavax liquid normal @ 200 ml/100 kg
5. High smut seed infection + Furavax liquid concentrate @ 100 ml/100 kg
6. High smut seed infection + Panoram dust 25 @ 150 g/100 kg
7. High smut seed infection + Erex dust 15 @ 100 g/100 kg

N.B. High seed infection was assessed by embryo staining at 2.5% infection. Low seed infection was assessed by embryo staining at 1.1% infection.

Assessments

Plant density counts were made 10 days after emergence, the % smutted heads were recorded at flowering, and grain yields were recorded at harvest.

Results & Comments

A summary of results is shown in Tables 2, 3 and 4. From Table 2 it can be seen that at Mr Barker all seed treatments resulted in a significantly (p 0.05) lower incidence of smutted heads compared to the untreated high seed infection control. All seed treatments, except the Erex treatment, resulted in a significantly (p 0.05) lower incidence of smutted heads compared to the untreated low infection seed. The Erex treated seed had a significantly (p 0.05) higher incidence of smutted heads compared to the other seed treatments viz panoram, and 3 formulations of furavax.

From Table 3 it can be seen that at Narrogin all seed treatments resulted in a significantly (p 0.05) lower incidence of smutted heads compared to the untreated high seed infection control. All seed treatments, except the Erex treatment, resulted in a significantly (p 0.05) lower incidence of smutted heads compared to the untreated low infection seed. The Erex treated seed had a significantly (p 0.05) higher incidence of smutted heads compared both to the other seed treatments and to the untreated low infection seed.

Table 4 shows the harvest yields for both trials. As those results are not analysed little comment can be made on any yield differences.

TABLE 2: Fungicidal control of loose smut in barley 80MT35 smutted head counts per 2.5 x 60 m plot

Treatment	R1	R2	R3	R4	Ave.	% Smut
1. Low seed inf. - No treatment	30	28	5	22	21.2	0.040
2. High seed inf. - No treatment	123	214	148	150	158.7	0.308
3. High seed inf. + Furavax dust 7.5 @ 100 g/100 kg	0	0	0	0	0	0
4. High seed inf. + Furavax liquid (norm) @ 200 ml/100 kg	7	0	0	8	3.7	0.007
5. High seed inf. + Furavax liquid (conc.) @ 100 ml/100 kg	7	5	7	8	6.7	0.014
6. High seed inf. + Panoram dust 25 @ 150 g/100 kg	1	2	9	7	4.7	0.010
7. High seed inf. + Erex dust 15 @ 100 g/100 kg	25	12	32	25	23.5	0.046

1. Analysis of variance - excluding Treatments 2, 3 and 4.

	V.R.	Significance
Replications	1	N.S.
Treatments	5.60	***

L.S.D. (p 0.05) = 13.08

2. Analysis of frequency data using log linear analysis of X^2 - excluding Treatment 3. Comparison of Treatments 7 and 1 N.S., comparison of Treatments 7 and 2, 7 and 4, 7 and 5, 7 and 6; all significantly different at p 0.0001.

TABLE 3: Fungicidal control of loose smut in barley 80NA37 smutted head counts per 2.5 x 60 m plots

Treatment	R1	R2	R3	R4	Ave	% SMUT
Low seed inf. - No treatment	244	279	293	199	253.7	.36
High seed inf. - No treatment	869	955	949	762	883.7	1.25
High seed inf. - Furavax dust 7.5 @ 100 g/100 kg	15	24	18	58	28.7	.04
High seed inf. - Furavax liquid (norm) @ 200 ml/100 kg	21	18	22	33	23.5	.03
High seed inf. - Furavax liquid (conc.) @ 100 ml/100 kg	60	65	95	81	75.2	.11
High seed inf. - Panoram dust 25 @ 150 g/100 kg	20	66	24	36	36.5	.05
High seed inf. - Erex dust 15 @ 100g/100 kg	349	306	427	330	353.0	.50

Analysis of variance - All treatments included

	V.R.	Significance
Replications	1.69	N.S.
Treatments	219.10	***

L.S.D. (p 0.05) = 62.8

TABLE 4: Effects of various seed treatments upon harvest yields (av. 4 reps)

Treatments	Av. yield kg/ha	
	Mt Barker (80MT35)	Narrogin (80NA37)
1. Low smut - no treatment	2486	2250
2. High smut - no treatment	2587	2156
3. High smut - Furavax dust 7.5 @ 100 g/100 kg	2449	2333
4. High smut - Furavax liquid (norm) @ 200 ml/100 kg	2517	2281
5. High smut - Furavax liquid (conc) @ 100 ml/100 kg	2615	2343
6. High smut - Panoram dust 25 @ 150 g/100 kg	2355	2297
7. High smut - Erex dust 15 @ 100g/100 kg	2465	2390

FOLIAGE DISEASES OF SUB-CLOVER

ROLE OF TRASH IN SUB-CLOVER FOLIAGE DISEASES

Aim

To investigate the role and importance of infected trash in sub-clover foliage diseases caused by *Phoma medicaginis* and *Leptosphaerulina trifolii* and to study disease development throughout the growing season.

Locality

Katanning District Office (80KA30)

Treatments

1. Nil trash control
2. Nil trash control plus regular high rate Benlate/ Mancozeb sprays.
3. Addition of a low level of infected trash.
4. Addition of a high level of infected trash.

Assessments

Disease incidence, severity and progress were monitored throughout the growing season.

Fungal populations were monitored by isolations throughout the growing season.

Results & Comments

There were no visual disease symptoms until the August 25 assessment. Visual disease symptoms were hard to find at this August 25 assessment; much more prevalent for the September 22 assessment where fungal fruiting bodies of both fungi could be observed on some leaves and petioles of many plants; and virtually disappeared for the October 27 assessment, probably due to drought conditions. There was no collapse of the plant stand from disease, as has occurred in previous years in the farmer's seed crops.

Fungal populations of all fungi were monitored throughout the growing season. Results for pepperspot (*Leptosphaerulina trifolii*) and spring black stem (*Phoma medicaginis*) are shown in Figures 5 and 6 respectively.

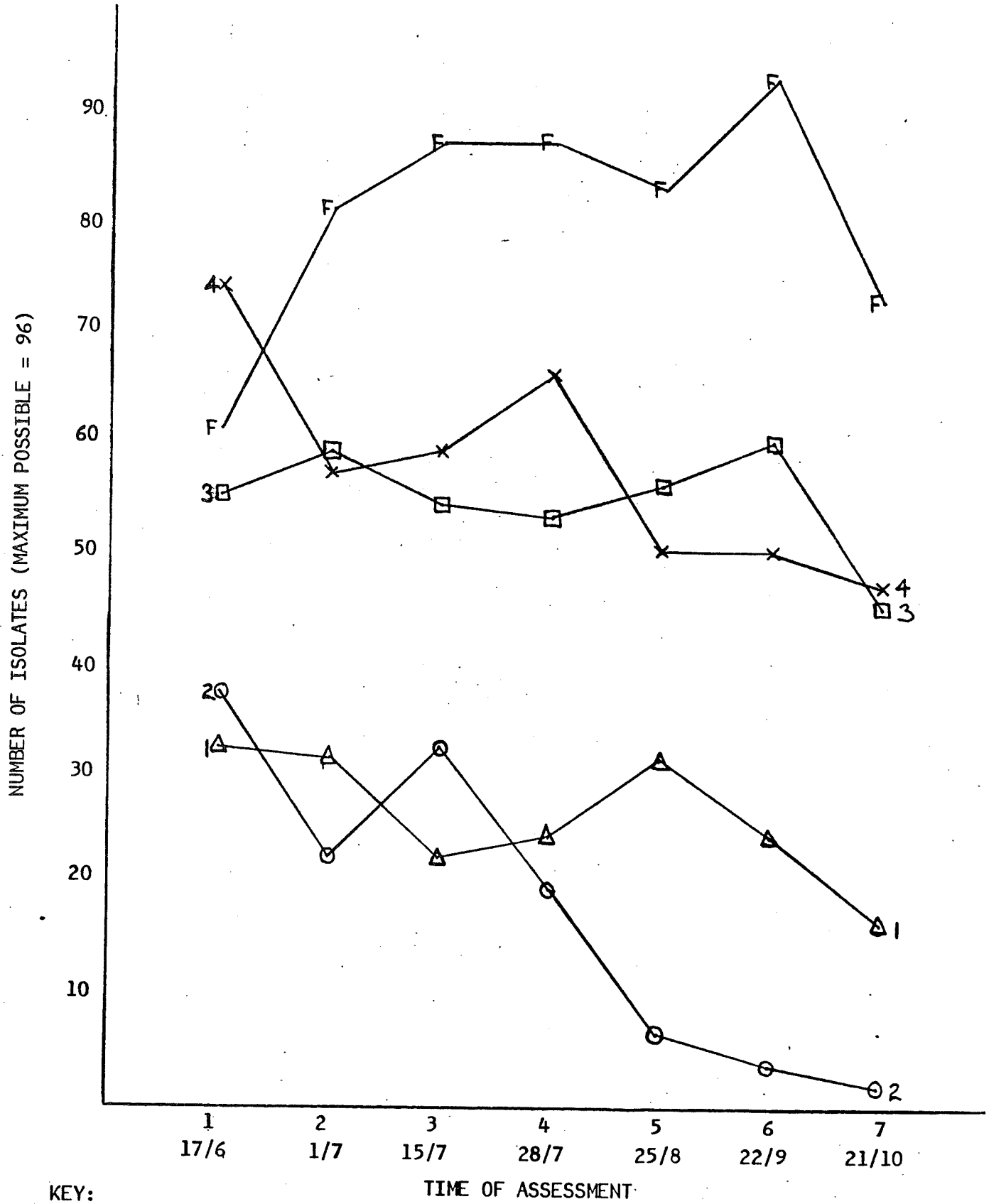
Infected trash appears to play a significant role in *L. trifolii* incidence. There was little difference in the incidence of pepperspot between the two trash added treatments, but both trash-added treatments had a much higher incidence of *L. trifolii* compared to the nil trash plots. *L. trifolii* was readily isolated from visually healthy cotyledons and petioles even when the plants had

had been germinated for barely 2 weeks. The highest incidence of L. trifolii was obtained from a nearby established cv. Esperance pasture. The frequent fungicide sprays did eventually significantly reduce L. trifolii incidence in one of the nil-trash treatments.

Results for P. medicaginis incidence were much more variable compared to those for L. trifolii. The nil trash plots generally had a lower overall incidence of P. medicaginis compared to the two trash added treatments, and compared to the nearby established cv. Esperance pasture. The frequent fungicide sprays did eventually significantly reduce P. medicaginis incidence in one of the nil-trash treatments.

Unfortunately the trial was severely affected by drought conditions towards the end of the growing season. These adverse environmental conditions stopped the development of the "hoped for" end of season disease epidemic.

FIGURE 5 Frequency of isolation of Leptosphaerulina trifolii (pepperspot) from sub-clover leaves and petioles, throughout the 1980 growing season, for the 4 trial treatments and a nearby established cv. "Esperance" sub-clover pasture.



KEY:

F - Nearby cv. "Esperance" pasture
Δ - Treat. 1 Nil trash control
O - Treat. 2 Nil trash control + fungicide sprays
□ - Treat. 3 Low rate of trash added
X - Treat. 4 High rate of trash added

FIGURE 6 Frequency of isolation of Phoma medicaginis (spring black stem) from sub-clover leaves and petioles, throughout the 1980 growing season, for the 4 trial treatments and a nearby established cv. "Esperance" sub-clover pasture.