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# Summary of 1975 field experiments with advisers: "Rape blackleg disease fungicide trials"

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WESTERN AUSTRALIAN DEPARTMENT OF AGRICULTURE

SUMMARY OF 1975 FIELD EXPERIMENTS

WITH ADVISERS

M.J. BARBETTI - PLANT PATHOLOGY BRANCH

"RAPE BLACKLEG DISEASE FUNGICIDE TRIALS"

## INTRODUCTION

During 1973 and 1974 a large range of fungicide spray and seed treatment schedules were tested. The 1973 results were, on the whole, not very encouraging, but the very early post-germination spray, two weeks after germination, did indicate a possible means of control. In view of the 1973 results, in the 1974 trials fungicidal sprays were applied early, and a new method of application of fungicide to the seed, known as "prilling" was used. Using fungicide seed prills and seedless fungicide prills the idea was to have the fungicide mixed with materials which dispersed upon wetting, so releasing and making the fungicide much more readily available for absorption by the plant roots.

From the 1974 trials very little was obtained in the way of meaningful results with respect to crown canker levels or harvest yields, due partly to the large variation between replications and the large variation within a single plot owing to late infections giving rise to a "patchy type" of disease infection development. The fungicides used in the 1974 trials were from old stocks, probably 1971. Some Eastern States researchers suggested at this time that not only did Benlate deteriorate during shelf life but that once moistened, as during the prilling process, the Benlate was then in a form which would no longer properly dissolve, forming only a crude suspension. In order to investigate these claims further trials were set up in 1975.

## METHODS

### (i) Sites

Four trials were set up at the four sites - Mt Barker Research Station, Green Range, Bremer Bay and Hopetoun. The Bremer Bay trial was abandoned due to insect attack. The Hopetoun trial was abandoned mid-way during the growing season as part of the trial had washed away and no disease was present.

### (ii) Treatments

The treatments tested were:-

- (a) Control - no treatment.
- (b) 2% Benlate seed treatment applied as a water slurry.
- (c) 280 g/ha Benlate post-emergence spray two weeks after germination.
- (d) 2% Benlate seed treatment applied as a water slurry, plus 280 g/ha Benlate post-emergence spray two weeks after germination.

### (iii) Assessments

Ratings for cotyledon infection were made by taking samples at 12 sites in each plot, starting at 2½m in from the plot end and thereafter every 5m. At each site a 15cm x 35cm wire quadrat was taken from the centre 4 rows, and the numbers of both healthy and diseased plants were recorded.

Ratings for crown cankers were made by sampling at 12 sites/plot as above. 15 plants/site were pulled up, washed and rated as clean or diseased.

## RESULTS AND DISCUSSION

There was no infection in the Mt Barker trial until after the cotyledons had senesced.

In the Green Range trial cotyledon infection was present, as shown in Table 1. All treatments at this stage resulted in a significant reduction in the level of plants with cotyledon infection compared to the 25.6% in the control.

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The seed treatment on its own reduced infection to 10.9%, the spray treatment on its own reduced infection to 8.4%, while the combination of both seed and spray treatments reduced infection to 3.6%.

These treatment differences at the Green Range trial had diminished somewhat by the beginning of flowering when a rating was made on the percentage of plants lodging in each plot. 53% of plants were lodging in the control, 39% for the seed treatment, 37% for the spray treatment, and 43% for the combined seed and spray treatment, i.e. there were no differences between the treated plots, but all seemed to be a bit better than the control.

However, these treatment effects in the Green Range trial had disappeared by the end of flowering, by which time all plots had been wiped out as a result of severe crown cankering.

The disease first appeared in the Mt Barker trial two weeks prior to the commencement of floral initiation. Crown canker assessments were made when flowering was completed, and the results are shown in Table 2. From these results it can be seen that no treatment reduced the percentage of plants with crown cankers, all plots having high levels of crown cankers.

#### CONCLUSION

Despite the testing of a wide range of chemicals under glasshouse conditions, benomyl still remains the most effective chemical against Leptosphaeria maculans.

The testing of benomyl and other chemicals over the past three years as seed treatments and as sprays for control of blackleg, has shown that economic control of this disease is not feasible under Western Australian conditions.

With a now better appreciation of the epidemiology of this disease I feel that new chemicals and new methods of chemical application are no longer worth testing. No further work with chemicals is proposed for blackleg disease.

TABLE 1 - Showing the percentage of plants in the various treatments with cotyledon infection (Green Range)

Treatment	Control %	Seed treatment	Spray treatment	Combined seed & spray treatment
Rep. 1	26.0	8.2	3.7	1.9
Rep. 2	24.1	12.7	7.9	4.6
Rep. 3	24.0	18.4	5.8	3.9
Rep. 4	29.8	5.3	9.1	1.5
Rep. 5	24.3	10.0	15.6	6.3
Average	25.6%	10.9%	8.4%	3.6%

TABLE 2 - Showing the percentage of plants in the various treatments with crown cankers (Mt Barker R.S.)

Treatment	Control %	Seed treatment	Spray treatment	Combined seed & spray treatment
Rep. 1	50	64	52	52
Rep. 2	59	51	53	41
Rep. 3	46	51	50	48
Rep. 4	55	40	42	51
Rep. 5	51	56	54	50
Average	52%	52%	50%	48%