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Plant diseases: Sclerotinia disease in vegetables: control with Allisan fungicide: a progress report

Cover Page Footnote
The authors are indebted to Mr. L. Goodchild and Messrs. J. & J. Anderson of Spearwood on whose properties these experiments were conducted. Grateful acknowledgment is also made to Mr. M. Thornett for statistical analyses of results.
**SCLEROTINIA DISEASE IN VEGETABLES**

Control with Allisan fungicide – a progress report

By S. C. CHAMBERS and M. HARDIE

The fungicide Allisan has given promising results as a cover spray for the control of Sclerotinia. Two applications of the material reduced the incidence of Sclerotinia in runner beans from 45 per cent. to 15 per cent. and in lettuce from 9 per cent. to 2 per cent.

During the past decade sclerotinia rot has become a major disease problem in metropolitan market gardens.

The disease, which is caused by the fungus *Sclerotinia sclerotiorum*, affects many kinds of vegetables, but is most damaging to autumn crops of beans, cauliflowers and lettuce (see Fig. 1). Because of its host range, the fungus is very difficult to control, especially on small holdings where an adequate rotation cannot be introduced into the cropping programme. Furthermore, the disease is carried over in the soil by means of sclerotia (fungal resting bodies) many of which remain alive for as long as two years. Consequently, once the disease has become established in a market garden there is always a great risk of infection in susceptible crops from soil-borne sclerotia.

Investigations started in 1958 have shown that the disease can be controlled by deep burial of these sclerotia using a modified method of trenching. Unfortunately this method is relatively expensive, costing about £60 per acre. A number of fungicidal materials have also been tested but none has given sufficient control to warrant its unqualified recommendation. (Chambers and Hardie, 1960.)

A recent report from Queensland (Pegg, 1962) referred to a marked reduction of sclerotinia in beans following the use of the newer fungicide “Allisan.” In view of these results, trials were implemented to test Allisan under local conditions.

**EXPERIMENTAL**

The first experiment was carried out in portion of a Western Australian runner bean crop at Spearwood.

The experimental design was a simple randomisation of treated and untreated plots in each of 10 replications. Each plot measured three rows by 18 links.

The plots were sprayed with Allisan at the rate of 2 lb. per 100 gallons on April 30, 1963. A second cover spray was applied on May 16, but the strength was reduced.

*“Allisan” is a 50 per cent. wettable powder formulation of 2,6-dichloro-4-nitroaniline.*
to 1½ lb. per 100 gallons because the first spray had caused slight injury to the foliage.

**TABLE 1**

**EFFECT OF ALLISAN ON INCIDENCE OF SCLEROTINIA**

(a) Beans

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Percentage of plants with basal rot on May 28th, 1963</th>
<th>Percentage of plants with basal rot on June 5th, 1963</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>32.2</td>
<td>44.7</td>
</tr>
<tr>
<td>Allisan</td>
<td>12.0</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Difference significant at 0.1% level.

(b) Lettuce

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Percentage of diseased lettuce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>9.1</td>
</tr>
<tr>
<td>Allisan</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Difference significant at 0.1% level.

The incidence of sclerotinia in the plots was assessed on May 28 and again on June 5 (Table 1a). This was based on the number of plants with diseased stem bases in random samples of 40 plants from each plot.

For the second experiment, part of a Triumph lettuce crop was used on another market garden at Spearwood. The design was similar to that of the first trial, each plot containing 40 healthy lettuces, but the number of replications was increased to 20.

Allisan was applied to the plots on July 1, 1963 at the rate of 2 lb. per 100 gallons and again at the same strength 14 days later. The incidence of disease was determined on July 24 (Table 1b).

**DISCUSSION**

The results as shown in Table 1 indicate a substantial reduction in the incidence of sclerotinia rot in beans and lettuce following two applications of Allisan. This reduction in sclerotinia is also illustrated in Fig. 2.
The initial concentration of the fungicide was 2 lb. per 100 gallons and was only reduced to 1½ lb. per 100 gallons for the second application to beans because of spray injury. Additional work is contemplated to determine whether the concentration of fungicide for all sprays can be reduced to 1½ lb. per 100 gallons while still maintaining satisfactory control. According to the Queensland report referred to earlier 1 lb. per 100 gallons proved inferior to the 2 lb. per 100 gallons rate.

Timing of spray applications is most important for successful control of sclerotinia rot. In these experiments the initial sprays were applied shortly after the disease became evident. Further work is planned to determine whether an additional and earlier application of fungicide would be of value.

ACKNOWLEDGMENTS

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