

USE OF DICHLORAN AGAINST SCLEROTINIA ROT OF TOMATOES

Sclerotinia rot, caused by the fungus *Sclerotinia sclerotiorum* (Lib.) de Bary, is a serious winter disease of many vegetable crops in Queensland. Beans and tomatoes are most affected, while losses in Brussels sprouts, carrots, capsicums, lettuce, parsnips and marrows are serious at times. The possibility of chemical control had not been thought likely in view of the general ineffectiveness of spray materials tested here and elsewhere in the past. However, recent experiments on the Near North Coast have shown that dichloran (2,6-dichloro-4-nitroaniline) sprays provide good control of the disease in beans (Pegg 1962). The work described here was undertaken to determine whether or not the same control is possible in the case of tomato stem rot.

Two properties were chosen where the disease was known to be regularly present, and portion of an existing planting on each was selected as a trial area. In Trial A, at Victoria Point, 12 adjacent plots of trellised Grosse Lisse tomatoes each $1\frac{1}{2}$ chains long were marked out and each alternate one sprayed weekly with dichloran at the rate of 2 lb per 100 gal of water, using a knapsack sprayer. The remaining six plots received no dichloran. In Trial B, at Slacks Creek, 12 adjacent plots each consisting of 1 chain of trellised Q5 tomatoes were similarly used.

Spraying was commenced on April 24, 1963, and continued until August 7, 1963, so altogether 15 applications were made. Dichloran was applied separately and in addition to the routine pest and disease control spray schedule.

A moderate amount of infection occurred on both trial areas (Figure 1) and allowed a satisfactory assessment to be made. In Trial A, the first serious outbreak occurred in early June, 5-6 weeks after spraying was commenced. In Trial B, the first outbreak occurred in early July. Yield figures and stem-rot counts were taken at weekly intervals. Only conspicuous stem-rot infections were counted. In most cases this type of infection led to wilting and death of the part of the plant above the affected area. Minor infections of leaflets and fruits were not included. From the graph in Figure 2 it can be seen that dichloran gave a considerable degree of protection from stem rot in both trials.



Fig. 1.—Portion of an untreated plot, Trial B.

In Trial B, uneven cropping over the area obscured the beneficial effect which these sprays may have had on total yields, but in Trial A this effect was clearly shown (Table 1).

TABLE 1

Total Yield, Trial A (lb per $1\frac{1}{4}$ chain plot)

Replicate No.	1	2	3	4	5	6	Mean
Dichloran 1/100 ..	324.3	261.0	338.5	273.7	237.5	298.8	289.0
Control	150.5	238.7	203.5	151.2	197.6	216.8	193.0

The difference between the mean yields of treated and untreated plots was 96 lb, which represents a mean increase yield per chain length of row of 72 lb. The total weight of dichloran (50% W.P.) applied to this length of row was calculated to be 5 oz.

Apart from one occasion when the spray was applied during cold showery weather, no plant injury was observed. In this one instance there was a slight burning of the most exposed foliage.

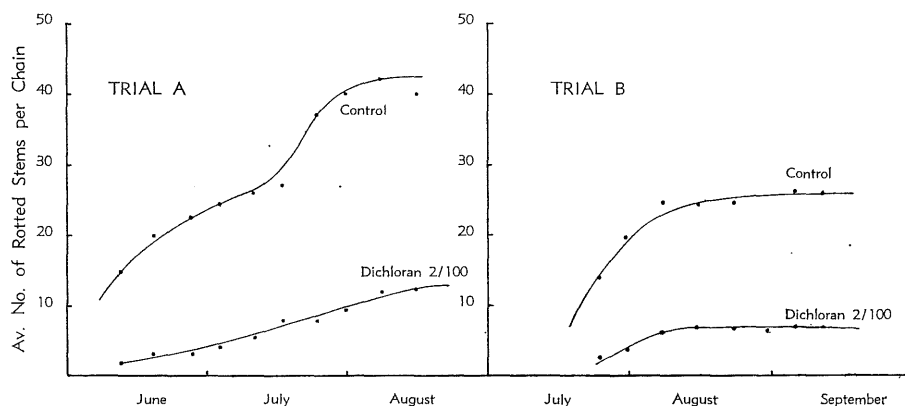


Fig. 2.—Results of the two trials.

The number of spray applications in both trials was in excess of requirements, this being particularly so in the case of Trial B. Although control is highly dependent upon preventive spraying, it would not be desirable in practice to apply sprays so far outside the susceptible period.

The period of susceptibility is strongly influenced by two factors, the season and the age of the crop. In south-eastern Queensland serious losses occur only within the period April to September inclusive, when temperatures are low enough to suit the fungus. Further, it is unusual for the disease to seriously affect the planting before a considerable amount of fruit has set. It may be said, therefore, that spraying needs to be undertaken only within the April-September period, when the plants have reached a susceptible age.

Increasing susceptibility with age appears to be associated with various forms of injury. The commonest infection sites are leaf or stem injuries caused by rubbing against trellis wires and lower leaves weakened by foliage diseases such as leaf mould and *Alternaria* and *Stemphylium* leaf spots. Protection from wind injury and foliage diseases therefore may also contribute significantly towards the prevention of this disease.

REFERENCE

PEGG, K. G. (1962).—Control of *Sclerotinia* rot of French bean. *Qd J. Agric. Sci.* 19:561-4.

J. C. JOHNSON,
Queensland Department of Primary Industries.

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