

Integrating materials that enhance plant defence systems with procymidone, for improved *Sclerotinia minor* control



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Introduction

- Plants have multiple natural defence mechanisms for defending themselves against disease. The enhancement of these natural defence mechanisms may provide a commercially viable addition to existing control methods.
- The use of materials that may enhance natural plant defence systems, with and without procymidone, were therefore evaluated in field trials as a means of improving *Sclerotinia* control in susceptible crops. These materials included acibenzolar-S-methyl (ASM), calcium sulphate, chitosan, and phosphorous acid.
- Coniothyrium minitans*, a biocontrol agent, was also examined in the trials.

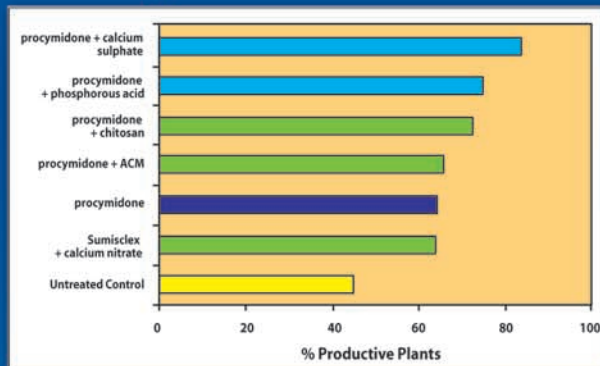
Sclerotinia wilt in pyrethrum crops



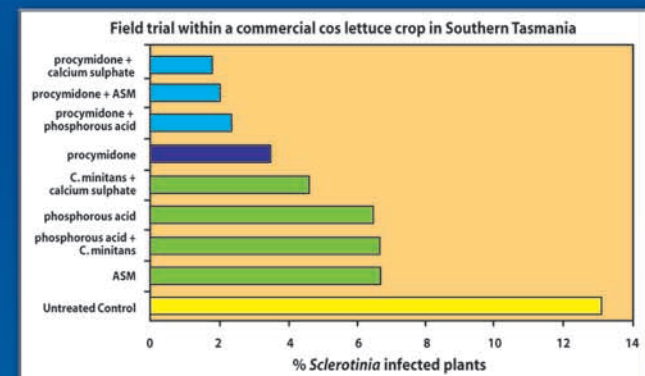
Sclerotinia wilt in lettuce crops



Disease control on pyrethrum



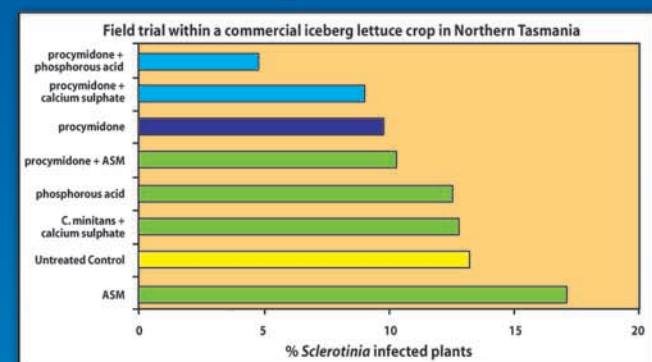
Disease control on cos lettuce



Trial results

- Lettuce plants treated with procymidone plus calcium sulphate or phosphorous acid tended to have a lower percentage of infected plants, compared to procymidone alone.
- Pyrethrum - procymidone plus calcium sulphate or phosphorous acid also improved disease control resulting in a higher percentage of productive plants and higher flower production.

Disease control on iceberg lettuce



Calcium sulphate (in the form of natural gypsum) and phosphorous acid are both relatively low cost products, making their application with procymidone commercially feasible.



Research outcomes

- Improved disease control consistently recorded with calcium sulphate or phosphorous acid plus procymidone spray applications. This could be due to both direct and indirect activities by the two products:
 - Direct activity by procymidone against the fungal pathogen,
 - Indirect activity by the other products, by enhancing plants' natural defense systems.
- When used on their own, calcium sulphate or phosphorous acid had little or no effect on disease control.

Acknowledgments

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