



The University of Adelaide  
Faculty of Agricultural and Natural Resource Sciences

**CHOCOLATE SPOT OF FABA BEANS IN SOUTH AUSTRALIA**

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## SUMMARY

Mycelial infections on crop residues of faba beans are the most important mechanism for summer survival of *Botrytis* spp which cause chocolate spot in southern Australia, and are the main source of primary inoculum. Up to 41 active colonies/200g of residue, and survival for more than 12 months in the field were recorded.

Host range studies showed that *Vicia narbonensis* Acc. SA 22648 and *V. sativa* cvs. Languedoc and Blanchfleur were as susceptible to *B. fabae* as *V. faba* cv. Fiord. Other grain legume species tested ,including *V. villosa* ssp. *dasycarpa* cv. Namoi and *V. benghalensis* cv. Popany, were resistant.

A model describing the relationship between infection % (I), temperature (T) and wet period (W) for *B. fabae* infection of *V. faba* cv. Fiord leaves in a controlled environment was determined as  $I = 34.85T + 89.91(\text{Ln}W) - 0.85T^2 - 2.69(\text{Ln}W).T - 404.96$  ( $R^2 = 0.93$ ). This showed significant correlation with field observations and predicted that the best conditions for infection would occur in wet spring weather.

A detached leaf inoculation technique was developed which was as effective as whole plant inoculations in screening for disease resistance. The technique was used to identify partially resistant *V. faba* accessions held in the Waite Agricultural Research Institute collection and to screen these against *B. fabae* and *B. cinerea* isolates collected from field surveys.

These tests and exposure of plants to natural infection in the field provided no evidence for races within *B. fabae*

and *B. cinerea*. They identified accessions derived from the ICARDA lines BPL 710 and BPL 261 as the best sources of resistance to chocolate spot in Australia. *B. fabae* was identified as the main disease causing organism while *B. cinerea* can cause the same symptoms but is usually less aggressive.

It was concluded that optimum disease control will require an integrated approach using disease resistance supplemented by fungicides as appropriate.

**STATEMENT OF ORIGINALITY AND CONSENT TO PHOTOCOPY OR LOAN**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text.

I give consent for this thesis being made available for photocopying and loan.

Jeremy I Dennis

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