

**Project Title:** Validation of DNA soil assays for key pulse pathogens

S 01 05 Final Report

**Project No:** S 1/05

**Project Title:** Validation of DNA soil assays for key pulse pathogens.

**Project Supervisor:** Jenny Davidson

**Contact Details:** Ph: (08) 8303 9389

Mob:

Email: jenny.davidson@sa.gov.au

### **Executive Summary**

A specific DNA test for *Phoma X* has been developed and used to survey soil and pea plants sampled from the cropping region of South Australia. The study concluded that the fungus is widespread in South Australia and can cause severe damage to pea plants, including death of the primary tiller. This is the first time in the world that *Phoma X* has been identified as part of the blackspot complex on field peas and the species has been described as *Phoma koolunga* in a publication accepted by an international scientific journal. *P. koolunga* levels in soils are not correlated to those of *Mycosphaerella pinodes* and *Phoma medicaginis* var. *pinodella*, the other fungi which cause blackspot disease on field peas. These differences could reflect the varying ability of the fungi to survive in soil. The level of *P. koolunga* in soils measured by the DNA assay was directly correlated to blackspot disease severity on plants. The DNA test, which will be added to the Predicta B service, will assist farmers to select paddocks with low inoculum loads of *P. koolunga*. Combined with the previously developed DNA test for blackspot this should enable growers to avoid paddocks with both inoculum types.

A specific DNA test for cercospora leaf spot of faba beans has been developed but it is not very sensitive making it less useful to growers. Other management techniques to control cercospora leaf spot ie. fungicides, rotations and genetic resistance, have been developed in related projects funded by GRDC.