

EVALUATION OF LUPIN CULTIVARS/ACCESSIONS
FOR THE INCIDENCE OF SOILBORNE PLANT
DISEASES, AND ISOLATION OF FUNGI
ASSOCIATED WITH THESE DISEASES

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SUMMARY

Soilborne diseases play an important role in poor stand establishment as well as limiting yield potential of *Lupinus angustifolius* and *Lupinus albus*. Little information about soilborne diseases of lupin, and the losses they may cause are available in South Africa. In this study the importance of these diseases was emphasized with high incidences of root rot recorded at Langgewens (Malmesbury) and Suurbraak (Swellendam), where 18 lupin cultivars/accessions were evaluated for resistance/tolerance to soilborne diseases at 6, 10 and 14 wks after planting. Cultivars Wonga and Helderberg were more resistant/tolerant to root rot at both Langgewens and Suurbraak than the other cultivars/accessions. These differences should be verified under controlled conditions, as uneven distribution of pathogen inoculum in the field will impact on results. Isolations were made from root rot and other soilborne disease symptoms. Fungi isolated from root rot included *Pythium* spp., *Fusarium avenaceum*, *F. crookwellense*, *F. oxysporum* and *F. solani* at both Langgewens and Suurbraak. All these fungi were previously associated with root rot of lupins, except *F. crookwellense* that is a known pathogen of wheat, a crop frequently used in rotation with lupins in the winter rainfall region. The fact that the seedling phase ($\pm$ first four weeks after planting) was excluded from this study may explain the infrequent isolation of *Rhizoctonia solani*, a pathogen that attacks seedlings before and after emergence. *Sclerotinia* sp. was isolated from water soaked lesions on stems. This corresponds with lesions observed in other countries where *S. sclerotiorum* and *S. minor* were determined to be the causal organisms. All of these fungi have a wide host range that includes canola, clover, annual *Medicago* spp., lucerne and wheat, which are included in crop rotation systems with lupins in the winter rainfall region. Managing these diseases, one of the major constraints to growing lupins, has become of utmost importance. This necessitates a thorough study of the etiology and epidemiology of diseases involved in lupin cropping, and establishing an integrated control strategy to ensure sustainable production.