Changes in concentrations of DNA of *Spongospora subterranea* in soil over 8 years in relation to land use

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Powdery scab is a soil-borne disease of major concern to Australia's potato industry. In this paper we report the results of 8 years of annual monitoring of concentrations of DNA of the powdery scab pathogen *Spongospora subterranea* in 28 commercial potato paddocks in Tasmania and 15 in South Australia. Changes in DNA concentrations were assessed in relation to changes in land use in the paddocks, to see if any land uses were associated with increases or decreases in soil pathogen load. Not surprisingly, growing potatoes was strongly associated with large increases in *S. subterranea* DNA concentrations, often greater than 10-fold, in soil at the following sampling. However, DNA concentrations generally decreased after this unless and until potatoes were again grown. Other cash crops and fodders in the rotation had little effect on inoculum. In nearly all of the paddocks where two potato crops were grown during the study period, the decrease between potato crops did not return *S. subterranea* DNA concentrations to values less than or equal to those we measured prior to the first potato crop. The implication of this is that Australian potato farming systems where successive potato crops are on average about 6 years apart appear unable to prevent a stepped but steady increase in *S. subterranea* inoculum and powdery scab risk.