

# Management of powdery scab: novel approaches and critical knowledge gaps

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The importance of root and tuber diseases of potato, caused by the biotrophic protozoan pathogen *Spongospora subterranea*, is recognised wherever potato is grown. Management of these diseases is difficult and often ineffective. This is because of the pathogen's ability to form resistant and long-lived resting spores that persist in cropping soils, its propensity to transmit as seed tuber-borne inoculum, the lack of effective registered pesticides to target the pathogen, rapid and polycyclic infection cycles by the pathogen within potato roots, and the scarcity potato cultivars with tolerance or resistance to *S. subterranea*. Long rotations between potato crops, seed tuber and soil health, pesticide treatments, and cultivar choice provide only partial disease control solutions. Therefore, novel approaches are required for management of *Spongospora* diseases, that can integrate with and augment, these current disease management methods to provide improved control. This paper describes new approaches targeting soil-borne inoculum, infection and disease development, which are being assessed to improve management of *S. subterranea* diseases. Critical relevant knowledge gaps will be highlighted, and areas for future research will be suggested.