Spongospora subterranea f. sp. *subterranea* affects plant susceptibility to subsequent pathogen infections under controlled environment conditions

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Effects of *Spongospora subterranea* f. sp. *subterranea* (*Sss*) on potato susceptibilities to subsequent infections by above ground pathogens have not been previously reported. In this study, effects were assessed of *Sss* on disease susceptibility to, and symptom development from, subsequent pathogen infections, on six potato cultivars with economic importance to the American potato industry. Tubers of cvs 'Lamoka' and 'Snowden' were the most susceptible to powdery scab formation. On the other hand, 50% to 92% of asymptomatic tubers across the six cultivars tested positive for *Sss* DNA, depending on cultivar. No correlation was detected between frequency of *Sss* on asymptomatic tubers and *Sss* biomass on these tubers. There was also no correlation across the six cultivars between root colonization and root gall formation. Through detached leaf assays on leaves that were taken from *Sss*-infected and non-infected potato plants at 12 weeks post-inoculation, *Sss*-infected 'Silverton' plants were more susceptible to hemibiotrophic late blight, and less susceptible to necrotrophic white mold, than non-*Sss* infected plants. *Sss* infection also increased susceptibilities of the leaves of cvs 'Goldrush' and 'Atlantic' plants to white mold. These results highlight the complexity of *Sss*-host interactions, and emphasize that lack of disease expression does not necessarily indicate resistance of a potato cultivar to *Sss*.