

## Characterizing and maintaining *Phytophthora infestans* in Wisconsin

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The oomycete *Phytophthora infestans* (Mont) de Bary, is a widely distributed phytopathogen and is the causal agent of late blight of potato (*Solanum tuberosum*) and tomato (*S. lycopersicum*). Late blight was a key factor in the Irish Potato Famine, which occurred around 160 years ago, and the disease remains problematic in modern agriculture when susceptible crops are grown under cool and humid environmental conditions. Severe economic losses due to late blight can result in commercial potato production as a result of yield reduction, storage losses, and increased cost of fungicide applications. *Phytophthora infestans* is a heterothallic oomycete with 2 compatibility groups termed mating types A1 and A2. When the two compatible mating types interact in or on infected leaves, stems, fruits, or tubers, this can result in the production of thickwalled, soil persistent oospores. In addition to tomato and potato, the host range of *P. infestans* includes other members of the Solanaceae family including *Solanum dulcamara* (bittersweet nightshade), and *S. physalifolium* (hairy nightshade), both common in Wisconsin. On susceptible crops, virulent clonal lineages of *P. infestans* can initiate an epidemic of late blight and, under continued favorable conditions, destroy the crop in 7 to 10 days. For enhanced management, rapid identification and clonal lineage characterization of the pathogen is critical. My project focuses on the *gpi* allozymes analysis of *P. infestans* from confirmed late-blight infected commercial and home garden solanaceous plant tissues from Wisconsin. Additionally, I assist in the isolation of the pathogen from infected tissues to generate clean, single-zoospore cultures for further research investigations in the areas of pathogen diversity and character.

