

Biology and management of take-all patch in Canada, caused by the fungus *Slopeiomyces cylindrosporus*

Objective 1: Determine if *Slopeiomyces cylindrosporus* is the causal agent of take-all patch across the remaining provinces in Canada and from the northern United States, ensuring samples are collected from regions with acidic soils and with alkaline soils.

To date, we have identified 5 TAP samples from golf courses in Canada as *Gaeumannomyces avenae*. We are in the process of sequencing other samples that morphologically appear to be *Slopeiomyces cylindrosporus*. We have also successfully seen the development of TAP symptoms on turf infected with 4 samples of *Slopeiomyces cylindrosporus* that were isolated from golf course samples from Alberta, Saskatchewan, and Ontario, and we are currently in the process of extracting and sequencing DNA from the infected plants.

Golf courses and the GTI diagnostic clinic are currently closed therefore limited or no samples will be received/collected. Currently, graduate students can still work in labs, but this may change as the situation with COVID-19 progresses. Although it is unlikely that new samples will be collected this year, samples have been saved from the last two years. The causal agent will be isolated from these samples and the DNA will be sequenced in the spring and summer, as long as Lab Services at the university remains open to sequence the DNA.

Objective 2: Identify the optimal infection method for *Slopeiomyces cylindrosporus* in order to replicate naturally infected sites and explore possible management practices.

Two greenhouse trials have already been completed and identified both the layering and plug method as suitable methods to inoculate turf under greenhouse conditions. Currently, there is a field trial testing three inoculation methods: plug, layering and surface applications of the inoculum. The trial was started last year in October. The current plan is to collect samples from the trial later in April, but this may change depending on new restrictions with COVID-19. Once samples are collected, the roots will be assessed for both incidence and severity of runner hyphae.

Objective 3: Determine the ideal environmental conditions for pathogen growth and infection of creeping bentgrass by *Slopeiomyces cylindrosporus*.

Experiments relating to this objective have not been started as the estimated completion date for this objective was May 2022. We currently do not have any plans to start new research due to restrictions placed on new research by the university. If the situation with COVID-19 improves, the trials to determine the ideal pH and temperature for pathogen growth will likely be started in the fall.