Bacterial leaf streak transmission driven by seed infection and irrigation

Vinuri Weerasinghe[*1], Malini Jayawardana[1], Shaheen Bibi[1] and W. G. Dilantha Fernando[1]

[1]Department of Plant Science, University of Manitoba, Winnipeg, MB, R3T 2N2

Correspondence to: weerasi1@myumanitoba.ca

Bacterial leaf streak (BLS) is a seed-borne disease and an emerging threat to small grain cereal production in the Canadian prairies. In wheat, BLS is caused by *Xanthomonas translucens* pv. *undulosa* (*Xtu*). Although infected seeds are the primary source of *Xtu* inoculum, their impact on disease severity and grain yield remains poorly understood. To assess the risk of seed infection and the effect of irrigation on seed-to-seedling transmission of *Xtu*, field experiments were conducted with five seed infection levels (0%, 1%, 10%, 50%, 100%) of the spring wheat variety, CDC Landmark, under irrigated and non-irrigated conditions at the Ian N. Morrison Research Farm, Carman, Manitoba, in 2025. The disease incidence and disease severity increased with the increasing seed infection level and irrigation. At the same time, grain yield was significantly higher under irrigation than under non-irrigation. The preliminary findings suggest an influence of seed infection and irrigation for seed-to-seedling transmission of *Xtu*, likely depending on environmental conditions. Multi-year data will allow us to determine a pathogen threshold level in seeds helping growers make informed decisions about seed health.