EMS Annual Meeting Abstracts
Vol. 14, EMS2017-428-1, 2017

The use of agrometeorological data for crop disease risk forecasting in Ireland: a case of potato late blight

Mladen Cucak (1,2), Rowan Fealy (1), Denis Griffin (2), Keith Lambkin (3), and Stephen Kildea (2)

(1) Maynooth University Department of Geography, Maynooth University, Co. Kildare, Ireland, (2) Teagasc Crops Research Centre, Oak Park, Carlow, Ireland, (3) Irish Meteorological Service (Met Éireann), Glasnevin Hill, Dublin, Ireland

The environment is a driving force for the development of agricultural crop diseases caused by biotic agents. The availability, quality and spatial resolution of agrometeorological data, coupled with up-to date models of disease causing agents, can create useful tools for the development of environmentally friendly and economically viable crop disease management practices. The Irish Potato Late Blight model, used for predicting periods conducive to the spread of blight, was developed in the 1950's with warnings issued by Met Éireann (The Irish Meteorological Service). Since then changes have occurred in potato production systems relating to late blight development, including changes in the Irish Phytophthora infestans populations and the development of effective fungicides and resistant varieties. In addition, the increased availability of agrometeorological data and computing power provide an increased ability to forecast weather events. To assess if these changes have impacted upon the accuracy of the warnings currently issued a re-evaluation is ongoing. This includes using data from synoptic weather stations coupled with disease observation data, to evaluate the blight prediction accuracy of the existing Irish blight model, as well as models of different complexities developed in several European countries. In addition, a 'new' Irish potato late blight model will attempt to overcome perceived simplifications in the blight pathogen's life cycle, made by the original Irish model, by including additional environmental variables such as solar radiation, leaf wetness and wind.