

Assessing the efficacy of new and commercially-available fungicides for control of late blight

Brief Summary

Different sets of field trials were conducted from 2010 to 2013 to evaluate different spray treatment programs for Russet Burbank and Prospect varieties, the two most common processing varieties grown in PEI. Treatment programs included phosphorous acid-based fungicides, Confine and Phostrol - comparing their efficacy and the best rate and frequency of applications. Other treatments included fungicides that have protectant, translaminar or systemic mode of action. All trials relied on natural late blight field infection; in 2010 there was late blight infection but unfortunately, there was no late blight in the test fields in 2012 and 2013 because the environmental conditions (warm and dry for most of the growing season) were not favorable for the development of the disease. Some measures to encourage late blight infection such as planting of a susceptible variety Shepody that served as spreader rows and misting the test plots with water did not work. In 2010, foliar treatment programs with phosphorous acid (Confine™ or Phostrol™), tanked-mixed with a protectant fungicide or combined spraying with either protectant or systemic fungicides appeared to have a better late blight control.

Other diseases observed in the test plots were early blight (*Alternaria solani*); brown spot (*Alternaria alternata*) and *Verticillium* wilt which was severe in 2012, causing severe early dying in Russet Burbank. Early blight disease rating was done where significant differences were observed in some treatments, in terms of incidence and severity. Yield differences among the treatment programs were observed; however, this could not be attributed to late blight alone in 2011 and 2013 trails. Likewise, fungicide field efficacy cannot be determined because there was no late blight for the last two years.

Post-harvest evaluation was conducted under laboratory condition in 2010 and 2011 by inoculating tubers with late blight pathogen at 10,000 sporangia per ml or about 40,000 spores for each tuber to determine if there are residual effects of the fungicides sprayed on plants during the growing season; if these could still offer tuber protection in the storage. Different treatments differed significantly; those that contain phosphorous acid-based fungicide (Confine™ and Phostrol™) had the best tuber protection.

Submitted by:

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