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For years, fungicides such as chlorothalonil have been used to control outbreaks of potato and tomato late blight, caused by the oomycete pathogen *Phytophthora infestans*. If conditions are favorable for late blight, the weathering of contact fungicides makes regular reapplication necessary; however, frequently administering fungicides incurs economic and environmental costs. These costs create a need for a Decision Support System (DSS), a tool by which growers can determine their relative risk of a *P. infestans* outbreak through the analysis of local weather data, both observed and predicted, in combination with disease forecast systems Simcast and Blitecast. Growers can use the DSS to explore several management scenarios through LATEBLIGHT (LB2004 version), a *P. infestans* simulator which predicts the development of *P. infestans* epidemics up to seven days into the future, taking into account predicted weather and host resistance, as well as user-determined fungicide application. With this information, growers will be able to make an informed decision regarding the application of fungicides, therefore optimizing limited resources and minimizing costs. Using disease progress data from field experiments in 2010 and 2011, DSS recommended fungicide application schedules were compared against time dependent application regimens to determine the cost mitigating capabilities of a DSS.