

## **ABSTRACT**

Johnson, D. A., Alldredge, J. R., and Hanun, R B. 1998. Expansion of potato late blight forecasting models for the Columbia Basin of Washington and Oregon. *Plant Dis.* 82:642-645.

A regional potato late blight forecasting system for irrigated potatoes in the semiarid environment of the Columbia Basin was expanded by developing specific forecasting models for four vicinities throughout the Basin. Relationships between weather and outbreaks of late blight at the locations over a 27-year period were examined using logistic regression analysis. The response variable was a year either with or without a late blight outbreak. An indicator variable representing the occurrence of an outbreak during the preceding year ( $Y_p$ ) and number of days of rain during April and May ( $R_{am}$ ) correctly classified the disease status (presence or absence of late blight) of 89, 82, 78, and 78% of the years at Prosser, Washington, Hermiston, Oregon, and Hanford and Othello, Washington, respectively. The percentage of years with disease outbreaks correctly classified was 93, 85, 79, and 79% at the four respective locations. All years with late blight outbreaks and 96% of the total years were correctly classified using data from at least one of the four locations. These predictors are particularly important early in the growing season and can be used to make area forecasts. A second set of predictors,  $Y_p$  and number of days of rain in July and August ( $R_{ja}$ ), for Hermiston and Hanford, and a third set,  $Y_p$ ,  $R_{am}$ , and  $R_{ja}$ , for Prosser and Othello were found effective for making additional late blight forecasts later in the growing season.