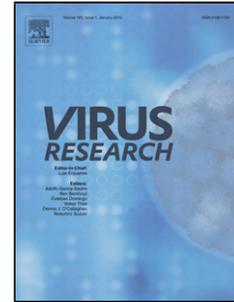


Accepted Manuscript

Title: Forecasting model for *Pea seed-borne mosaic virus* epidemics in field pea crops in a Mediterranean-type environment

Authors: B.S. Congdon, B.A. Coutts, R.A.C. Jones, M. Renton



PII: S0168-1702(16)30768-7
DOI: <http://dx.doi.org/doi:10.1016/j.virusres.2017.05.018>
Reference: VIRUS 97146

To appear in: *Virus Research*

Received date: 21-11-2016
Revised date: 15-5-2017
Accepted date: 24-5-2017

Please cite this article as: Congdon, B.S., Coutts, B.A., Jones, R.A.C., Renton, M., Forecasting model for Pea seed-borne mosaic virus epidemics in field pea crops in a Mediterranean-type environment. *Virus Research* <http://dx.doi.org/10.1016/j.virusres.2017.05.018>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Forecasting model for *Pea seed-borne mosaic virus* epidemics in field pea crops in a Mediterranean-type environment

Running heading: Forecasting *Pea seed-borne mosaic virus* epidemics

B.S. Congdon^{1,2*}, B.A. Coutts³, R.A.C. Jones^{2,3} and M. Renton^{1,2}

¹School of Agriculture and Environment, Faculty of Science, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia.

²Institute of Agriculture, Faculty of Science, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia.

Emails: roger.jones@uwa.edu.au, michael.renton@uwa.edu.au

³Crop Protection Branch, Department of Agriculture and Food Western Australia, Locked Bag No. 4, Bentley Delivery Centre, Perth, WA 6983, Australia.

Emails: brenda.coutts@agric.wa.gov.au, roger.jones@agric.wa.gov.au

Corresponding author: Benjamin Congdon, email: benjamin.congdon@research.uwa.edu.au

Highlights

- An empirical forecasting model to predict *Pea seed-borne mosaic virus* (PSbMV) epidemics was developed in R using aphid and virus incidence data from six years of 23 calibration block and experimental plot data.
- The final optimised model accurately predicted virus incidence around crop flowering time ($R^2=0.94$). It had a mean absolute error of just 4.6% demonstrating its usefulness as a PSbMV epidemic predictor in the future.
- A decision support system (DSS) was formulated based on predicted yield loss (based on historical yield loss data) and economic factors involved in pea production.
- Recommendations will be delivered to end-users *via* SMS in combination with the already established pea blackspot DSS to form a pea disease control package.

PSbMV = *Pea seed-borne mosaic virus*, DSS = Decision support system

Download English Version:

<https://daneshyari.com/en/article/8752115>

Download Persian Version:

<https://daneshyari.com/article/8752115>

[Daneshyari.com](https://daneshyari.com)