



HAL
open science

Assessment of the synchrony between incubation and latency periods of peach trees infected by Plum pox virus

Loup Rimbaud, Agnès Delaunay, Sylvie Dallot, Sonia Borron, Samuel Soubeyrand, Gael Thébaud, Emmanuel Jacquot

► To cite this version:

Loup Rimbaud, Agnès Delaunay, Sylvie Dallot, Sonia Borron, Samuel Soubeyrand, et al.. Assessment of the synchrony between incubation and latency periods of peach trees infected by Plum pox virus. 15. Rencontres de Virologie Végétale (RVV), Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD). Montpellier, FRA. Institut de Recherche pour le Développement (IRD), FRA., Jan 2015, Aussois, France. hal-01602151

HAL Id: hal-01602151

<https://hal.science/hal-01602151>

Submitted on 5 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Talk:

Assessment of the synchrony between incubation and latency periods of peach trees infected by *Plum pox virus*

Loup Rimbaud¹, Agnès Delaunay², Sylvie Dallot², Sonia Borron², Samuel Soubeyrand³, Gaël Thébaud², Emmanuel Jacquot²

¹ Montpellier SupAgro, UMR BGPI, Cirad TA A-54/K, F-34398 Montpellier Cedex 5

² INRA, UMR BGPI, Cirad TA A-54/K, F-34398 Montpellier Cedex 5

³ INRA, UR 546 Biostatistics and Spatial Processes, F-84914 Avignon Cedex 9

loup.rimbaud@supagro.inra.fr

The relative durations of incubation (the time between inoculation and symptom expression) and latency (the time between inoculation and infectiousness of the host) are poorly documented for plant diseases. However, the extent of asynchrony between the ends of these two periods (i.e. their mismatch) is a key determinant of the epidemic dynamics of many diseases and consequently is of primary interest in the design of disease management strategies. In order to assess this mismatch, we developed an estimation approach based on experiments and we applied it on sharka, a severe disease caused by *Plum pox virus* (PPV, genus *Potyvirus*) on trees belonging to the *Prunus* genus. Leaves of infected young peach trees were used individually as viral sources in aphid-mediated transmission experiments carried out at different time points post inoculation to bracket symptom onset. By fitting a binomial generalized linear model to the obtained transmission rates, we demonstrated that the first symptoms appear on a leaf 1 day before it rapidly becomes infectious. In addition, among the symptomatic leaves, we found a positive correlation between symptom intensity and transmission rate. The latter result strengthens the conclusion that, under our experimental conditions, latency and incubation of PPV infection are almost synchronized.

Key words: infectious potential, latent period, *Myzus persicae*, *Potyviridae*, symptom severity