

ASSOCIATION OF APPLIED BIOLOGISTS

ASPECTS OF APPLIED BIOLOGY 94

Potatoes: Viruses and their vectors

at SASA, Edinburgh, UK

on 16 September 2009

Produced by the Association of Applied Biologists

**Copies available from: The AAB Office
The Warwick Enterprise Park, Wellesbourne,
Warwick CV35 9EF, UK**

REFERENCES

The correct form of reference for this publication, which is based on a meeting of the Association of Applied Biologists, is:

Aspects of Applied Biology 94, Potatoes, Viruses and their vectors, pp. xxx–xxx.

Papers are included herein without any liability for loss or damage suffered as a result of their application or use. Reference herein to trade names and proprietary products without special acknowledgement does not imply that such names, as defined by the relevant protection laws, may be regarded as unprotected and thus free for general use. No endorsement of named products is intended nor is any criticism implied of similar products which are not mentioned. *Please note* certain names of chemicals featured in this publication are Registered Trademarks.

This publication is copyright under the Berne Convention and the Universal Copyright Convention. All rights reserved. Apart from any relaxation permitted under national copyright laws, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission of the copyright owners. Permission is not, however, required to copy Abstracts of papers on condition that a full reference to the source* is shown. Multiple copying of the contents of the publication without permission from both The Association of Applied Biologists through the Executive Officer and separately from the author, or other holder of the unilateral copyright, is always illegal.

The Association of Applied Biologists and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this publication; the views and opinions expressed do not necessarily reflect those of the Association of Applied Biologists and Editors.

ENQUIRIES

Enquiries concerning the technical content of chapters should be addressed directly to the authors but other matters should be directed to the Executive Officer, AAB Office,
The Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK.

Printed in UK

Published by the Association of Applied Biologists
The Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK

© 2009 The Association of Applied Biologists

ISSN 0265-1491

*Full reference: *Aspects of Applied Biology 94, Potatoes: Viruses and their vectors*, published by the Association of Applied Biologists, The Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK.

Potatoes: Viruses and their vectors

INTRODUCTION

This conference provides a major platform for the dissemination of recent developments in the understanding of the major viruses affecting potato production, including *Potato leafroll*, *Potato viruses A and Y*, *Tobacco rattle* and *Potato mop top viruses* as well as their respective vectors, with an emphasis in the fields of diagnostics and crop protection. With the proposed withdrawal of a number of agrochemicals used to control the aphids and soil-borne vectors of these viruses across Europe, it is timely to examine recent developments. Papers vary in focus: from in depth reports of recent biological research; to new options for chemical and biological control and key practical issues for breeding, agronomy and disease management. Themes include:

- Epidemiology of aphid-borne viruses
- Epidemiology of soil borne viruses
- Water management: irrigation and its effects on vector movement
- Diagnostics and their effectiveness: the application of molecular markers to disease diagnostics and management
- Vector control in potatoes: aphids, free living nematodes and powdery scab
- Understanding and managing pesticide control options
- Effect of EU legislation on agricultural practices, costs and output
- Agricultural practices to optimise profit and returns
- Reduced inputs into sustainable crop production: management, optimisation, new genetic approaches and genetic resources
- Breeding objectives and selection pressures
- Effects of changing climate on the interaction between the potato crop, potato viruses and their vectors.

Sessions focus on important potato viruses and their vectors: PVY, PVA, PLRV and aphids; *Tobacco rattle virus* and nematodes; and *Potato mop top virus* and Powdery Scab.

Finlay Dale, Jon Pickup and Stuart MacFarlane
AAB Plant Physiology & Crop Improvement, Nematology and Virology Groups, respectively

CONTENTS

	<i>Page</i>
Extreme resistance to potyviruses in <i>Solanum tuberosum</i> group <i>phureja</i> L TORRANCE, H LIU, G COWAN, J BRADSHAW & S MACFARLANE	1–4
Epidemiology of viruses in Scottish seed potatoes J PICKUP, K DAVIE, A FOX, F HIGHET & R HOLMES	5–10
Determination of aphid transmission efficiencies for N, NTN and Wilga strains of <i>Potato virus Y</i> M VERBEEK, P G M PIRON, A M DULLEMANS, C CUPERUS & R A A VAN DER VLUGT	11–17
An N-terminal domain of <i>Potato mop-top virus</i> TGB1 protein mediates nucleolar targeting and is essential for long-distance movement of viral RNAs ALISON ROBERTS, GRAHAM COWAN, EUGENE SAVENKOV, KATH WRIGHT, ANGELIKA ZIEGLER, SEAN CHAPMAN & LESLEY TORRANCE	19
Temperature and the transmission of <i>Potato mop-top virus</i> (PMTV) S F CARNEGIE, G S SADDLER & T DAVEY	21–26
Progress in field diagnostics for potato virus detection and epidemiology B FENTON, G L MALLOCH, A FLYNN & R VAN TOOR	27–30
Extensive field based aphid monitoring as an information tool for the UK seed potato industry P NORTHING	31–34
Characterisation of an atypical isolate of PVM ADRIAN FOX, WENDY MONGER, TOM NIXON, RACHEL GLOVER & PAUL BARBER	35–40
<i>Tobacco rattle virus</i> in potatoes M F B DALE	41–47
 <i>Posters</i>	
The development of a Clondiag potato virus microarray for diagnostic use BEN BARRETT, IAN ADAMS, RACHEL GLOVER & NEIL BOONHAM	49–50
Cultivar susceptibility to <i>Potato mop-top virus</i> (PMTV) infection and symptom expression S F CARNEGIE, G S SADDLER & J C PETERS	51–54
Epidemiology of TYLCV and ToMoV in greenhouse grown tomato in Kuwait EBTISAM H M AL-ALI, HANADI AL-HASHASH & AHMED BEN HEJJI	55–62
Identification of PVY strains in Belgium and determination of the aphid species associations VERONIQUE GENIN, NICOLAS DESOIGNIES, FREDERIC FRANCIS & CLAUDE BRAGARD	63
Investigating factors affecting infection of potato by <i>Spongospora subterranea</i> ALISON LEES, LOUISE SULLIVAN & JENNIE BRIERLEY	65–66

