

PROGRAM

Sunday: Arrival to campus and registration 12 noon to 6:00 PM

Social time followed by dinner 5:00 PM onward

The symposia will be themed and consist of one Keynote talk and 4-5 additional speakers.

The themes are listed below:

- [Monday](#) - Virus Epidemiology
- [Tuesday](#) - Virus Ecology/Evolution
- [Wednesday](#) - Vector Biology/Transmission
- [Thursday](#) - Virus Disease Management

Monday, June 21, 2010 – Virus epidemiology – (*Sunny Power, Mike Thresh, Roger Jones, Juan Alvarez*)

Keynote Speaker:

Mike Jeger (UK) (m.jeger@imperial.ac.uk)

Title: Modelling plant virus transmission: from within-plant virus dynamics to epidemic development

Five invited talks:

1. James Legg (Uganda) (j.legg@cgiar.org)

Title: A tale of two epidemics: the contrasting dynamics of cassava mosaic and cassava brown streak diseases in East Africa

Mike Jeger, G. Powell, L. V. Madden and F. van den Bosch

2. Cecile Desbiez (INRA France) (cecile.desbiez@avignon.inra.fr)

Title: Molecular epidemiology of potyviruses infecting cucurbits in France: a case study for understanding evolution of plant virus populations

Cecile Desbiez

3. Roger Jones (ARWA - Australia) (rjones@agric.wa.gov.au) –

Title: Epidemiology of *Zucchini yellow mosaic virus*: effectiveness of non-host barriers, spread, resistance breakdown, alternative hosts and molecular characterization

B. Coutts, M. Kehoe, S. Wylie and Roger Jones

4. Albert Culbreath – (U Georgia, US) (spotwilt@uga.edu) TSWV epidemiology

Title: Epidemiology of TSWV in Peanut in the Southeastern United States

5. Nilsa Bosque-Perez (U. of Idaho)

Title: Influence of virus-induced changes in plants on aphid vectors and potential impacts on virus epidemiology

Nilsa Bosque-Perez

15 minute Oral Presentations

- 1:30 – Landscape/pathosystem components that contribute to epidemic risk in plant virus pathosystems: a conceptual model

Forrest W. Nutter, Jr.

- 1:45 – Emergence, establishment, and epidemiology of *Cucurbit yellow stunting disorder virus* in California
William M. Wintermantel, E. t. Natwick, R. L. Gilbertson and J. D. McCreight
- 2:00 – Epidemiology of *Iris yellow spot virus* in eastern North American onion ecosystems
B. Nault, C. Hsu, E. Smith, A. Shelton, M. Fuchs and C. Hoepting
- 2:15 – Search for factors potentially involved in the rapid shift in *Watermelon mosaic virus* (WMV) populations in south-eastern France
H. Lecoq, F. Fabre, B. Joannon, C. Wipf-Scheibel, C. Chandeysson, A. Schoeny and C. Desbiez
- 2:30 – Pepino mosaic virus: what do we know so far and how to proceed
R. A. A. van der Vlugt
- 2:45 – The epidemiology of *Tobacco streak virus* in central Queensland, Australia
M. Sharman, **J. E. Thomas** and D. M. Persley
- 3:00 – Alternative hosts of two tospoviruses in Queensland, Australia
Denis Persley, M. Sharman, J. Thomas and C. Gambley
- 3:15 – Epidemiological analysis of multi-virus infections of watermelon in experimental fields in southwest Florida
William W. Turechek, C. S. Kousik, C. G. Webster, P. A. Stansly, P. D. Roberts and S. Adkins
- 5 minute Poster Advertisements
- 3:30 – Phenology of aphids and their potential as virus vectors in a northern seed potato production area in Finland
S. M. Kirchner, L. Hiltunen, E. Virtanen and J. P. T. Valkonen
- 3:35 – Preliminary disease progress curve of *Potyvirus*es and vector interaction in garlic crop in Argentina
M. C. Perotto, S. Lanati, S. Panonto, E. E. Cafrune and **V. C. Conci**
- 3:40 – Occurrence and epidemics of *Wheat dwarf virus* in China
Xifeng Wang, B. Wu and G. Zhou
- 3:45 – Temporal and spatial spread of chickpea chlorotic dwarf virus (CpCDV) in chickpea in northern Sudan
Abdelmagid Adlan Hamed
- 3:50 – The genus *Torradovirus*, a new plant virus genus now harbouring three species all infecting tomato
Martin Verbeek, A. Dullemans, P. Maris, H. van den Heuvel and R. van der Vlugt
- 3:55 – Evaluation of thrips-*Iris yellow spot virus* interactions through an indicator host, lisianthus (*Eustoma grandiflorum*)

Rajagopalbabu Srinivasan, D. Riley, S. Diffie, H. Pappu and R. Gitaitis

Posters

Relationships between *Citrus tristeza virus* spread and aphid species (Hemiptera, Aphididae) population composition in different citrus species and geographical areas
C. Marroquín, Alfonso Hermoso de Mendoza and M. Cambra

Dually stressed tobacco plants demonstrate heavier cell pathology
O. Iutinska, A. Bysov, O. Shevchenko and V. Polischuk

The incidence and genetic diversity of *Turnip yellows virus* (TuYV) in winter oilseed rape (*Brassica napus*) in England
Elvis Asare-Bediako, C. Jenner, M. Stevens and J. Walsh

Oral presentation in virus ecology/evolution occurrence and distribution of viruses in cucurbits from Oklahoma
Akhtar Ali and A. Khattab

Detection of *Soil-borne cereal mosaic virus* in Belgium on wheat and barley
C. Vaianopoulos, A. Legrève, C. Lorca, V. Moreau, M. Wattiez and C. Bragard

Epidemiology of *Plum pox virus* in Ukraine
I. Budzanivska, L. Usko, A. Gospodaryk, F. Demyanenko and V. Polischuk

Multiplex PCR assay for the simultaneous differentiation *Potato virus Y* strains and the first report of the occurrence of the Eu-PVY^{NTN} strain in Japan
M. Chikh Ali, T. Maoka, M. Taniguchi, J. Sasaki and T. Natsuaki

Monitoring and forecasting virus diseases in legumes in the Palouse region of the inland Pacific Northwest, USA
D. S. Husebye, Sanford D. Eigenbrode, E. Bechinski, A. V. Karasev, S. L. Clement, B. Vemulapati and H. Pappu

Disruption of two defensive signaling pathways by the cucumber mosaic virus 2b RNA silencing suppressor
M. G. Lewsey, A. M. Murphy, D. MacLean, N. Dalchau, J. H. Westwood, K. Macaulay, M. H. Bennett, M. Moulin, D. E. Hanke, G. Powell, A. G. Smith, Heiko Ziebell and J. Carr

Tuesday, June 22, 2010 – Virus Ecology/Evolution (Carolyn Malmstrom, Marilyn Roossinck, Hannu Pappu)

Keynote Speaker:

Sonny Power – (Cornell University, US) (agp4@cornell.edu)

Title: The community ecology of barley/cereal yellow dwarf viruses in Western US grasslands

Five Invited Talks:

1. William Schneider – (USDA-ARS) (William.Schneider@ARS.USDA.GOV)
Title: Balancing selection for replication and horizontal transmission by mimicking field conditions
William Schneider, A. L. Stone, B. Tian, F. E. Gildow and V. D. Damsteegt
2. Fernando Garcia-Arenal – (Spain) (fernando.garciaarenal@upm.es)
Title: Arabidopsis thaliana as a model system for plant virus ecology and plant-virus co-evolution
Fernando García-Arenal, I. Pagán, A. Fraile, N. Montes and C. Alonso-Blanco
3. Marilyn Roossinck – (Nobel Foundation, US) (mroossinck@noble.org)
Title: Wild plant viruses and disease ecology
Marilyn Roossinck
4. Jan Kreuze - (CIP, Lima) (J.KREUZE@CGIAR.ORG)
Title: siRNA deep sequencing for the discovery and sequencing of novel viruses
Jan F. Kreuze, W. Cuellar, G. Müller, R. Kumria, C. Fauquet and I. Barker

15 minute Oral Presentations

- 1:30 – When did the new world and old world begomoviruses diverge?
Siobain Duffy and J. A. McConnell
- 1:45 – Origin, evolution and molecular epidemiology of papaya ringspot virus
X. A. Olarte Castillo, Y. Rojas, P. Tennant, M. Fuchs, R. Sierra, A. J. Bernal, G. Fermin and S. Restrepo
- 2:00 – Long-term evolution of the *Luteoviridae*: time-scale and mode of virus speciation
Israel Pagán and E. C. Holmes
- 2:15 – Adaptation of soybean dwarf virus to new host species
Bin Tian, W. L. Schneider and F. E. Gildow
- 2:30 – Towards the description of the plant virus metagenome of the French sub-Antarctic Islands
Armelle Marais, C. Faure, S. Arous, L. Svanella-Dumas, C. Couture, M. Hullé and Thierry Candresse
- 2:45 – Ecogenomic study of plant viruses reveals widespread infection of wild plants with Zucchini yellow mosaic virus
Prasenjit Saha, F. Chavarría, J. Quan, H. C. Lai, B. A. Roe and M. J. Roossinck

3:00 – The significance of wild plants in the evolutionary diversification of *Sweet potato feathery mottle virus* in East Africa

A. K. Tugume , *S. B. Mukasa and J. P. T. Valkonen*

3:15 – Plant-virus co-evolution in wild brassicas

J. A. Walsh, *C. Obermeier, P. J. Hunter, R. Machado, K. Ohshima and M. J. Kearsey*

5 minute Poster Advertisements

3:30 – The effect of transmission mode on genetic diversity in Zucchini yellow mosaic virus (ZYMV)

Heather E. Simmons, *E. C. Holmes and A. G. Stephenson*

3:35 – Genetic structure and molecular variability of *Grapevine fanleaf virus* populations within three naturally infected California vineyards

J. E. Oliver, *E. Vigne and M. Fuchs*

3:40 – Next-generation sequencing of plant viruses

Wendy Monger, *R. Glover, I. Adams and N. Boonham*

3:45 – Genetic variability, recombination events and rates of molecular evolution in citrus tristeza virus

G. Silva, *and G. Nolasco*

3:50 – A survey of begomoviruses and associated satellites infecting plants in the cotton-growing areas of Northwestern India

V. Zaffalon, V. S. Reddy, S. K. Mukherjee, M. Tepfer and **Jeremy R. Thompson**

3:55 – The evolution of cassava brown streak-associated viruses (family *Potyviridae*) in East Africa

D. R. Mbanzibwa, *Y. P. Tian, A. K. Tugume, S. B. Mukasa, F. Tairo, S. Kyamanywa, A. Kullaya and J. P. T. Valkonen*

Posters

The diversity of ampeloviruses and badnaviruses in Australian pineapples and their association with mealybug wilt of pineapple (*ananas comosus*)

C. F. Gambley, *V. Steele, A. D. W. Geering and J. E. Thomas*

Variation in sugarcane cultivar host range of *Sugarcane yellow leaf virus* genotypes in Guadeloupe

Daugrois Jean Heinrich, *D. Sarah, F. Emmanuel, G. Jean-Claude and R. Philippe*

Sequence comparison of different *Cauliflower mosaic virus* isolates infecting canola in Iran

Nooh Shahraeen, *S. Ghaderi Maryam and F. Rakhshandehroo*

Metagenomics and quarantine: searching for the unknown

Philippe Roumagnac

Epidemiology and phylogenetic aspects of *Iris yellow spot virus* (Tospovirus) naturally infecting onion plants in Peru

A. S. Oliveira, R. C. T. Aliaga, T. A. Melgarejo, R. N. Lima and R. O. Resende

Sequence analysis of Potato virus M isolates from Czech Republic

Helena Plchova, N. Cerovska, T. Moravec and P. Dedic

Use of plant viruses in non-food agriculture

Noemi Cerovska, H. Plchova, T. Moravec, H. Hoffmeisterova, J. Folwarczna, V. Ludvíkova and M. Smahel

Genetic diversity of Pepino mosaic virus in the U. S. and identification of a tomato infecting strain capable of inducing disease on potato

Kai-Shu Ling

Evolution of resistance-breaking in *tomato spotted wilt virus*: response to selection by sw5 mediated resistant tomato

Jessica L. Houle, J. W. Moyer and G. G. Kennedy

Molecular characterization of endogenous plant pararetroviruses in wild *Dahlia* spp from natural habitats

S. G. Eid, C. V. Almeyda, K. L. Druffel, D. E. Saar and **H. R. Pappu**

Molecular epidemiology of African cassava mosaic viruses in Yangambi, Northeastern Democratic Republic of Congo

G. Monde, J. Walangululu, S. Winter and C. Bragard

Three commonly co-occurring perennial grass species have less herbivore and pathogen attack in their introduced range than in their native range

G. Kai Blaisdell and Bitty A. Roy

Wednesday, June 23, 2010 – Vector Biology/Virus Transmission (*Nilsa Bosque-Perez, Rodrigo Almeida, Stephane Blanc, Russ Groves*)

Keynote speaker:

Dr. Stephane Blanc (INRA, France) (blanc@supagro.inra.fr)

Title: How can a virus react to the presence of its vector and immediately switch to a transmissible form

Five Invited Talks:

1. B. Bonning (US-Iowa State University) (bbonning@iastate.edu)

Title: An aphid gut binding peptide impedes entry of Pea enation mosaic virus into the aphid hemocoel

*S. Liu and **Bryony Bonning***

2. R. Almeida (US-UC Berkeley): (rodrigoalmeida@berkeley.edu)

Title: Grapevine leafroll-associated viruses – mealybug transmission biology and ecology

Rodrigo P. P. Almeida and K. M. Daane

3. Piotr Trebicki (Australia- DPI Horsham) (Piotr.Trebicki@dpi.vic.gov.au)

Title: The impact of elevated CO₂ on wheat, *Cereal yellow dwarf virus* and its aphid vector

Piotr Trebicki, A. Freeman, J. Luck, M. Aftab, S. King, M. Spackman, G. Fitzgerald, K. Powell, S. Seneweera and N. A. Bosque-Perez

4. James Ng (US-UC Riverside) – (jamesng@ucr.edu)

Title: Virus-vector interactions mediating the specific retention and whitefly transmission of criniviruses

James Ng

5. Drake Stenger (USDA, ARS) (drake.stenger@ARS.USDA.GOV)

Title: Sequence polymorphism of a glassy-winged sharpshooter phytoeovirus reveals a bottleneck in the Californian population

Drake Stenger

15 minute Oral Presentations

- 1:30 – Differential transmission rates of PVY^O and PVY^{NTN} from two inoculum sources by three aphid vectors

J.M. Alvarez and F. Cervantes

- 1:45 – Vector fitness on infected plants affects virus epidemiology

Belén Belliure, B. Sabater-Muñoz, M. E. Martínez, and M. R. Albiach-Martí

- 2:00 – Deceptive chemical signals induced by a plant virus attract insect vectors to inferior hosts

Kerry Mauck, C. De Moraes, and M. Mescher

- 2:15 – Comparative genome analysis of an asymptomatic *citrus tristeza virus* isolate with its symptomatic aphid transmitted sub-isolates

Avijit Roy, N. Choudhary, V. D. Damsteegt, and R. H. Bransky

- 2:30 – Alterations of capsid protein amino acid positions internal to the virion disrupt nonpersistent virus transmission by aphids
C. A. Bricault and Keith Perry
- 2:45 – New insights on the transmission mechanisms of plant viruses by their aphid vectors
A. Moreno, E. Garzo, G. Fernandez, M. Kassem, M. A. Aranda and A. Fereres.
- 3:00 – Identification of *Myzus persicae* proteins that interact with PVY HC-Pro *in vitro*
Ahmad Al-Mrabeh, A. Ziegler, B. Fenton, G. Cowan and L. Torrance
- 3:15 – Biomarkers distinguishing virus transmission competent and refractive insect populations identified by coupling genetics with quantitative intact proteomics
Michelle Cilia, C. Tamboredeguy, K. Howe, T. Fish, T. Thannhauser and S. Gray

5 minute Poster Advertisements

- 3:30 – Determination of aphid transmission efficiencies for N, NTN and Wilga strains of *Potato virus Y*
Martin Verbeek, P. Piron, A. Dulleman, C. Cuperus and R. van der Vlugt
- 3:35 - Antagonistic effects of PVY-infected potato plant on aphids
S. Boquel, P. Giordanengo and A. Ameline
- 3:40 - Variation in transmission of *tomato spotted wilt tospovirus* among isolates and populations of a vector, *thrips tabaci*
Alana Jacobson and G. Kennedy
- 3:45 - Do secondary bacterial *endosymbionts* of *Sitobion avenae* clones affect vector specificity or transmission efficiency for barely yellow dwarf virus?
Hussein Alkhedir, S. Vidal, P. Karlovsky, A. Habekuss, and E. Schliephake
- 3:50 - What's new in polerovirus transmission?
Sylvaine Boissinot, B. Bencharki, B. Monsion, S. Revollon, M. Erdinger, C. Reinbold, V. Ziegler-Graff, S. Tanguy, D. Tagu and V. Brault

Posters

Transmission of two isolates of *Broad bean wilt virus1* (BBWV-1) by several aphid species
I. Ferriol, L. Rubio and Belén Belliure

Responses of *Myzus persicae* to headspace volatiles of *Nicotiana benthamiana* infected with artificial mutants of *Potato leaf roll virus*
Sanford D. Eigenbrode, H. Ding, A. V. Karasev and J. Kuhl

Bird cherry-oat aphid behavior in response to barley yellow dwarf virus disease infection of wheat
L. L. Ingwell, Nilsa A. Bosque-Perez, L. M. Unger, H. Ding, A. V. Karasev and S. D. Eigenbrode

Transmission of several isolates of *Tomato spotted wilt virus* (TSWV) by
Frankliniella occidentalis
D. Debreczeni, L. Rubio, J. Aramburu, L. Galipienso, C. López, S. Soler and **Belén**
Belliure

Thursday, June 24, 2010 – Virus Disease Management/Control (*Jari Valkonen, Ian Barker, Scott Adkins*)

Keynote speaker:

Ian Barker (CIP, Nairobi) (I.BARKER@CGIAR.ORG)

Title: Clean seed programs in Africa

Five invited speakers:

1. Jari Valkonen (Finland) (jari.valkonen@helsinki.fi)

Title: Cryotherapy of shoot tips as an efficient means for virus and phytoplasma elimination and healthy plant production

Jari Valkonen

2. Scott Adkins (USDA, ARS) (Scott.Adkins@ARS.USDA.GOV)

Title: Ecology and management of whitefly-transmitted vegetable viruses in Florida

Scott Adkins, C.G. Webster, C. S. Kousik, S. E. Webb, P. D. Roberts, P. A. Stansly and W. W. Turechek

3. Britt-Louise Lennefors (Syngenta, Sweden) (brittlouise.lennefors@syngenta.com)

Title: Combination of natural and engineered resistance to rhizomania in sugar beet

Britt-Louise Lennefors, E. I. Savenkov, J. Bensefelt, E. Wremerth-Weich, P. van Roggen, S. Tuveesson, J. P. T. Valkonen and J. Gielen

4. Renato Resende (Brazil) (rresende@unb.br)

Title: Development of broad, stable and durable resistance to monopartite and bipartite begomoviruses in Brazilian tomato lines

Renato Resende

5. Russell Groves (US-U-Wisconsin) (groves@entomology.wisc.edu)

Title: Modeling vector flights to increase effectiveness of foliar protectant programs

Russell L. Groves, A. Charkowski and A. Crockford

15 minute Oral Presentations

- 1:30 – A mutation in the NIB cistron of *Potato virus Y* confers virulence towards the *Pvr4* resistance of pepper and a high competitiveness cost in susceptible cultivar

B. Janzac, J. Montarry, A. Palloix, O. Navaud and Benoît Moury

- 1:45 – Modulation of virus-host plant interplay in the tomato yellow leaf curl disease by using insect resistance in the tomato host

M. J. Rodriguez-López, E. Garzo, J. P. Bonani, A. Fereres, R. Fernández-Muñoz and E. Moriones

- 2:00 – Mild and aggressive Pepino mosaic virus isolates: tomato transcriptomic responses and the potential of cross-protection as a control strategy

Inge M. Hanssen, H. P. van Esse, A. Paeleman, I. Gutiérrez-Aguirre, K. Goen, L. Wittemans, B. Lievens, M. Ravnikar and Bart, P. H. J. thomma

- 2:15 – Controlling the banana bunchy top disease pandemic in sub-Saharan Africa

P. Lava Kumar, R. Hanna, A. Fotso, M. Soko, S. A. Akinbade, O. J. Alabi, J. Ngeve and R. A. Naidu

2:30 – Improved virus diagnostics to support seed certification in Australia
B. C. Rodoni, M. Milinkovic, C. Bottcher, P. Pongsapit and S. Sombat

2:45 – Epidemiology of *Plum pox virus* (PPV) in nursery blocks and evaluation of the effect of horticultural mineral oil treatments
Eduardo Vidal, A. Moreno, E. Bertolini and M. Cambra

3:00 – Biological control of vectors affects virus dispersal
Belén Belliure, H. R. Amorós, M. A. Marcos-García, I. R. Steba, A. Moreno and A. Fereres

3:15 – A cucumber mosaic virus mutant that induces resistance to its aphid vector in tobacco
Heiko Ziebell, A. Murphy, M. G. Lewsey, J. H. Westwood, K. L. Perry, M. Stevens and J. P. Carr

5 minute Poster Advertisements

3:30 – Rhizomania of sugar beet-similarities and differences between the Iranian and European situation
Y. Galein, A. Champeil, M. Merhvar and **C. Bragard**

3:35 – Survival of *Pepino mosaic virus* in aqueous environment reveals the need for efficient detection system suitable not only for plant but also for environmental samples
Maja Ravnikar, N. Mehle, N. Prezelj, D. Delić, U. Vidic, P. Kramberger and I. Gutierrez-Aguirre

3:40 – Viruses in weeds in *Dioscorea* yam fields in Nigeria
S. Asala, C. P. Shinggu, R. Asiedu and P. Lava-Kumar

3:45 – Simultaneous detection of two important bean RNA viruses by multiplex reverse transcription polymerase chain reaction
A. Saidi, **Nooh Shahraeen** and A. Azizi,

3:50 – Distribution of PVY strains in susceptible and moderately resistant North American cultivars
Jonathan Whitworth, S. Gray, A. Karasev and J. Lorenzen

3:55 – Detection and molecular epidemiology of *Oat sterile dwarf virus*
I. Eriksson, J. N. E. Ramsell, A. Linnell, N. Shad, J. Holmblad, B. Ekbom, L. Frykberg, F. Rabenstein and **Anders Kvarnheden**

Posters

Restricted spread by *Bemisia tabaci* of *Tomato yellow leaf curl virus* in the begomovirus-resistant Brazilian line TX-468

R. C. Pereira-Carvalho, J. A. Díaz-Pendón, R. Fernández-Muñoz, R. O. Resende, L. s. Boiteux and E. Moriones

Occurrence, incidence and distribution of viruses infecting yam (*Dioscorea* spp) in Nigeria

S. Asala, M. D. Alegbejo, B. D. Kashina, O. O. Banwo, R. Asiedu and P. Lava-Kumar

A Cucumber mosaic virus 2b-mutant was not able to establish a systemic infection in bell pepper (*Capsicum annuum* L.)

J. Masiri, N. V. Velasquez and John F. Murphy

Incidence and prevalence of Strawberry mild yellow edge virus (SMYEV) in Argentina

A. K. Torrico, F. Fernández, A. Ishikawa, N. G. Meneguzzi, L. R. Conci, M. del Huerto Sordo, A. M. Borquez, R. Pacheco, V. Obregón, D. S. Kirschbaum and Vilma C. Conci

Plum pox potyvirus

Vahida Seremet

A tospovirus new to North America: virus detection and discovery through the use of a macroarray for viruses of solanaceous crops

Keith L. Perry and X. Lu

Toward aphid-resistant transgenic plants

S. Liu, Z. Wang, S. Sivakumar, L. Georgievska, G. F. King, W. A. Miller and Bryony C. Bonning

Potyviruses of legume weeds and *Passiflora* spp. from Western Australia: biological properties and phylogenetic placement of coat protein sequences

B. A. Coutts, M. A. Kehoe, C. J. Webster, S. J. Wylie and R. A. C. Jones

Incidence and control of cucurbit viruses in NWFP Pakistan

Asad Ali, A. Hussain, M. Ahmad and T. Natsuaki

Post-transcriptional gene silencing (PTGS) is a mechanism of plant host-defense against viruses

P. Gouveia, A. Costa and G. Nolasco

Development of several laboratory assays for the detection of Apricot latent virus

L. Grimová, M. Zouhar and P. Ryšánek

Virus diseases of cereal crops in the Czech Republic

J. Jarošová, S. Gadiou, J. Ripl and Jiban Kumar Kundu

Potato leafroll virus (PLRV) resistant potatoes

Tomas Moravec, H. Plchova, P. Dedic and N. Cerovska

Viral infection of wild orchids in Ukraine

V. Polischuk, I. Budzanivska and G. Koroteeva

Analysis of the temporal and spatial spread of *Plum pox virus* as influenced by USA and Canadian eradication programs

*A. Gougherty and **Forrest W. Nutter, Jr.***

Bean common mosaic virus and bean common mosaic Necrosis virus in Mazandaran province of Iran

***Shahraeen Nooh**, S. Asghari and G. Shereen*

Precision breeding PVY resistance using a modified potato gene

J. Cavatorta, M. Jahn and S. Gray