6th International Phosphorus Workshop (IPW6)

PROGRAMME

University of Seville, 27 September – 1 October, 2010

COMMITTEES

IPW6 Organizing Committee

Antonio Delgado (University of Seville)

Eusebio Carmona (University of Seville)

José Manuel Quintero (University of Seville)

Fernando Gil Sotres (University of Santiago de Compostela)

José Torrent (University of Córdoba)

COST Action 869 WG1 Organizing Committee

Phil Haygarth (Lancaster University, UK)

Iggy Litaor (Tel Hai College, Israel)

Wim Chardon (ALTERRA, The Netherlands)

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Ministerio de Ciencia e Innovación (Spanish Ministry of Science and Innovation)
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University of Seville
Fertiberia S.A.

WELCOME TO THE IPW6

The organizing committee is pleased to welcome you to the 6th International Phosphorus Workshop. We are grateful to all the participants for attending the workshop despite current financial difficulties and meeting the deadlines.

The IPW6 is also pleased to share some sessions with Working Group WG1 of the COST Action 869 (Mitigation options for nutrient reduction in surface water and groundwaters), which will surely result in a successful exchange of ideas on the study of phosphorus losses from soil.

We wish all participants a fruitful scientific meeting and hope they enjoy their stay in Seville.

Antonio Delgado

Chairman of the Organizing Committee

MEETING INFORMATION

Date, venue

Monday to Friday, 27 September – 1 October 2010, at the University of Seville, Pabellón de México, Paseo de las Delicias, 41013 Sevilla. Phone: +34 954486065. A map of the area can be downloaded from the IPW6 website.

Weather conditions at Seville

Daily maximum and minimum temperatures at the end of September in Seville are 30-34 and 16-20 °C. Rain is unlikely. Wearing a cap (supplied with the conference material) in the central hours of a sunny day is highly recommended.

Registration

The registration desk in the main hall of the workshop building will be available to participants on Monday 10:00 a.m. – 4:00 p.m, Tuesday 8:30 a.m. – 4:30 p.m and Wednesday 3:00 p.m. – 7:00 p.m. A person from the workshop organization will be available during the opening hours to assist attendees on registration and technical questions on conference materials and presentations.

Opening hours

Monday:	10:00 a.m. – 8:00 p.m
Tuesday:	8:30 a.m. – 7:30 p.m.
Wednesday:	2:30 p.m. – 7:30 p.m.
Thursday:	8:30 a.m. – 7:30 p.m.
Friday:	8:30 a.m. – 2:30 p.m.

Notice board

Attendees should pay attention to the notice board in the registration hall for any changes in the programme, urgent matters and personal notes/questions/requests posted by attendees and the workshop organization.

Conference badge

The personal badge received at the time of registration should be worn during the workshop activities and social events.

Certificate of attendance

A certificate of attendance can be obtained at the registration desk.

Meals

The attendees will receive the corresponding meal tickets at the time of registration. The workshop fee includes the welcome reception at the Reales Alcázares on Monday, all lunches from Tuesday through Friday, coffee breaks, and the gala dinner on Thursday. Lunch will be served on a restaurant close to the workshop building.

Accompanying persons

There is no specific program for accompanying persons but tickets for the welcome reception, lunches and the gala dinner can be purchased in advance at the registration desk.

Field trip

The field trip to the Tomejil Agricultural Experimental Station and Carmona will depart from the area in front of the workshop building at 8:30 a.m. and be back at about 1:15 to be in time for lunch at the workshop restaurant.

Instructions for oral presentations

The position of the presentations should be checked in the programme. The regular oral presentations are allocated 20 min exactly (ideally, 15 min talk and 5 min discussion). Computers, projectors, laser pointer and microphone will be provided by the organizers. Speakers are requested to hand over and test their CD ROM or pen drive the day before their presentations to the persons in charge of the projection at the desk designated as “Speakers corner” in the main hall. Power Point 97-2003 files on PC (Windows) are requested.

Instructions for posters

Posters will be continuously displayed from Monday to Friday. A poster should not be more than 90 cm wide and 110 cm high. The poster boards are grouped by topics/sessions and labelled with the corresponding poster numbers. Velcro tape and/or pins will be available in the poster area.

Internet connection

The workshop building is a Wi-Fi area. A limited number of internet points will be made available for the participants in the main building hall.

Monday, 27 September	
10:00–16:00	Registration
16:00–16:20	Opening and presentation
16:20–17:00	Plenary keynote
17:00–17:30	Coffee Break
17:30–18:50	Plenary keynotes
18:50–19:10	Useful informations
20:30	Welcome reception

	Tuesday, 28 September		Wednesday, 29 September		Thursday, 30 September		Friday, 1 October	
	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
9:00–11:00	Global P flows		8:30-13:15 Field trip	8:30-13:15 Field trip	P mobilization and modelling IPW6/COST	Monitoring P loss	From 9:40 P mobilization and modelling IPW6/COST	Mitigation options
11:00–11:30	Coffee break				Coffee break			
11:30–12:30	P dynamics and cycling				P mobilization and modelling IPW6/COST	Mitigation options		Mitigation options
12:30–13:30		P in water bodies					Conclusions and closure	
13:30–15:00	Lunch							
15:00–16:20	P dynamics and cycling	P in water bodies	P dynamics and cycling	P mobilization and modelling IPW6/COST	P mobilization and modelling IPW6/COST	Mitigation options		
16:20–16:50	Coffee Break							
16:50–18:10	P dynamics and cycling	P in water bodies	P dynamics and cycling	P mobilization and modelling IPW6/COST	P mobilization and modelling IPW6/COST			
18:10–19:00	Poster viewing							
21:15					Gala dinner			

PROGRAMME & ORAL PRESENTATIONS

Monday

10:00–16:00 Registration and poster mounting

16:00–16:20 Opening ceremony and presentation

16:20–17:00 Plenary keynote – Chair: Antonio Delgado
John Ryan,
Management of phosphorus in the low-input agricultural systems of the West Asia and North Africa region

17:00–17:30 Coffee break

17:30–18:10 Plenary keynote – Chair: Antonio Delgado
Claude Plassard
Phosphorus bioavailability – nothing but a rhizosphere story

18:10–18:50 Plenary keynote – Chair: Antonio Delgado
Jerry Lemunyon
Using a field-scale index to assess phosphorus loss from an agricultural environment

18:50–19:10 Information to participants

20:30 Welcome reception in Reales Alcázares

Tuesday -Room A

Session: Global phosphorus flows
Chair: Paul Withers, Fernando Gil

9:00–9:40 **Keynote:** Paul Withers
Global phosphorus fluxes and the threat to food security

9:40–10:00 Thomas Nesme, Kalimuthu Senthilkumar, Alain Mollier, Sylvain Pellerin
A modeling approach to estimate P flows and balance at country scale: a case study for France

10:00–10:20 A.L. Smit, J.C. van Middelkoop, W. van Dijk, H. van Reuler , P.A.M. van de Sanden
Phosphorus flows in the Netherlands: options for a more sustainable use

10:20–10:40 Marc Stutter, Charles Shand, Tim George, Martin Blackwell, Liz Dixon, Tegan Darch, Will Roberts, Phil Haygarth
An inventory of UK soil phosphorus and the implications for sustainable food production

11:00–11:30 Coffee break

Session: Phosphorus dynamics and cycling
Chair: Emmanuel Frossard, Fernando Gil

11:30–12:10 Keynote: Emmanuel Frossard
Soil organic phosphorus dynamics - pools, actors and processes

12:10–12:30 Joakim Ahlgren, Faruk Djodjic, Lennart Mattson
Identification and quantification of organic phosphorus forms in soils from fertility experiments

12:30–12:50 Juan Antelo, Sarah Fiol, Claudio Pérez, Dora Gondar, Rocío López, Florencio Arce
Phosphate and arsenate adsorption on iron mineral surfaces

12:50–13:10 Jeremy L. Darilek, Biao Huang, Zhigang Wang, Yanbing Qi, David C. Weindorf
Effect of Moisture Conditions in Rice Paddies on Phosphorus Fractionation in Agriculture Soils of Developing Regions of China

13:10–13:30 Sara De Bolle, Stefaan De Neve
Evolution of the phosphate saturation degree and its distribution with depth in acid sandy soils in Flanders

13:30–15:00 Lunch

Session: Phosphorus dynamics and cycling (continued)

Chair: Peter Leinweber, José Torrent

15:00−15:20 Faruk Djodjic, Lennart Mattsson
Dynamics of easily soluble and plant available phosphorus in relation to soil phosphorus status and fertilization rate

15:20−15:40 Ann Kristin Eriksson, Barbro Ulén
Phosphorus in agricultural soils around the Baltic Sea – Comparisons of laboratory methods as indices for phosphorus leaching to waters

15:40−16:00 Javier Erro, Roberto Baigorri, Oscar Urrutia, Angel M. Zamarreño, Jean-Claude Yvin, Jose M. García-Mina
Development and validation of new fertilizers of high bioavailability and reduced nutrient losses: "Rhizosphere controlled fertilizers (RCF)"

16:00−16:20 Jose M. Garcia-Mina, Oscar Urrutia, Javier Erro, Iñaki Guardado, Francesco Storino, Roberto Baigorri, Pedro Aparicio-Tejo, Natxo Irigoyen, Marcos Mandado, Jean-Claude Yvin
Characterization of organo-metal-phosphate complexes. Development of new superphosphates: organic-complexed superphosphate (CSP)

16:20-16:50 Coffee break

16:50−17:10 Lisa Heiberg, Charlotte Kjærgaard, Hans Christian B. Hansen, Henning S. Jensen
Phosphate sorption in anoxic soils - as influenced by the degree of Fe^{III}oxide reduction

17:10−17:30 Peter Leinweber, Jens Kruse, Wakene Negassa Chewaka, Lucia Zuin, Narayana Appathurai
Advances in Phosphorus Speciation in Environmental Samples by Synchrotron-based X-ray Absorption Near-Edge Spectroscopy

17:30−17:50 Daniel Leitner, Jakob Santner, Zuzanna Frkova, Tiina Roose, Andrea Schnepf
A Dynamic Model Describing Phosphate Uptake of Oilseed Rape Growing in Rhizotrons

17:50−18:10 Dwi Retno Lukiwati, Budi Adi Kristanto, Surahmanto
Production and Nutrient Uptake Improvement of Sweet Corn by Organic-Inorganic Fertilizers and AMF Inoculation

18:10-19:00 Poster viewing

Tuesday -Room B

Session: Phosphorus in water bodies
Chair: Ken Irvine, Antonio Delgado

12:30–13:10 **Keynote:** Ken Irvine
Phosphorus dynamics and impact in water bodies-standing on the shoulders of giants

13:10–13:30 Tegan Darch, Martin Blackwell, Jane Hawkins, Phil Haygarth, David Chadwick
Phosphorus Dynamics in Buffer Strip Soils

13:30–15:00 Lunch

Session: Phosphorus in water bodies (continued)
Chair: Ken Irvine

15:00–15:20 Jeroen de Klein, Jan Janse, Annelies Veraart
Setting critical values for phosphorus loading in ditches and streams with an ecological model

15:20–15:40 Petri Ekholm, Jouni Lehtoranta
Should we focus only on P load when aiming to reduce eutrophication in a P-limited aquatic system?

15:40–16:00 Judith Hinger, Brian Kronvang, Nikolaus Kuhn, Charlotte Kjærgaard, Goswin Heckrath[3]
Riparian buffers of small streams have larger phosphorus mobilization potentials than adjacent farmland in Eastern Denmark

16:00–16:20 Charlotte Kjaergaard, Carl Christian Hoffmann, Lisa Heiberg, Hans Christian B. Hansen, Henning S. Jensen, Kristian Kristensen
Predicting phosphorus release following wetland restoration

16:20–16:50 Coffee break

Session: Phosphorus in water bodies (continued)
Chair: Douglas Smith, Antonio Delgado

16:50–17:10 Brian Kronvang, Joachim Audet, Hans E. Andersen, Søren E. Larsen
Bank erosion as a phosphorus source in a Danish river basin

17:10–17:30 Douglas Smith
Alternatives to Tile Risers for Managing Farmed Depressions

17:30-17:50 Eva Walpersdorf, Lisa Heiberg, David O'Connell, Christian B. Koch, Charlotte Kjærgaard, Henning S. Jensen, Hans Christian B. Hansen
Do iron(II) phosphates control phosphate solubility in anoxic soils and sediments?

18:10-19:00 Poster viewing

Wednesday -Room A

8:30-13:15 Field trip

13:30–15:00 Lunch

Session: Phosphorus dynamics and cycling (continued)
Chair: José Torrent

15:00–15:20 Dwi Retno Lukiwati, Migie Handayani, Rinta Waluyanti
Response of *Zea mays* to the Residual Effect of Phosphorus Fertilizers in Latosolic Soil

15:20–15:40 Eva Oburger, David. L. Jones, Walter W. Wenzel
Effect of pH and soil P content on phosphate solubilization mechanisms by different organic acids in soil

15:40–16:00 Malorie Renneson, Joseph Dufey, Laurent Bock, Gilles Colinet
Effect of parent materials and land use on soil phosphorus characteristics in Southern Belgium

16:00–16:20 Gitte H. Rubæk, Kristian Kristensen, Leif Knudsen
The Olsen soil P test - trends in time, certainty and sources of variation

16:20-16:50 Coffee break

Session: Phosphorus dynamics and cycling (continued)
Chair: José Torrent

16:50–17:00 Jakob Santner, Hao Zhang, Daniel Leitner, Thomas Prohaska, Markus Puschenreiter, Walter W. Wenzel
Chemical imaging of dissolved phosphorus reveals complex P dynamics in the rhizosphere of *Brassica napus*

17:00–17:30 Federica Tamburini, Stefano M. Bernasconi, Verena Pfahler, Emmanuel Frossard
Oxygen isotopes in phosphate: Can it work in the soil/plant system?

17:30–17:50 Noura Ziadi
Anion exchange resin membranes to assess soil P status following organic and mineral fertilizers in eastern Canada

18:10–19:00 Poster viewing

Wednesday -Room B

8:30-13:15 Field trip

13:30–15:00 Lunch

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales
Chair: Elisabetta Barberis, Antonio Delgado

15:00–15:40 **Keynote:** Elisabetta Barberis
Phosphorus mobilization at plot and field scale

15:40–16:00 Presentation of the IPW6/COST 869 WG1 Joint Meeting

16:00–16:20 Teresa Borda, Luisella Celi, Daniel Said-Pullicino, Dario Sacco, Elisabetta Barberis
Processes involving phosphorus accumulation and losses in undisturbed soil columns

16:20–16:50 Coffee break

16:50–17:10 Barbara J. Cade-Menun, Brian G McConkey, Alan D. Iwaasa, H.A. (Bart) Lardner
Characterizing Dissolved and Particulate Phosphorus in Snowmelt Runoff from Cattle Winter Bale-Grazing Sites

17:10–17:30 Faruk Djodjic, Barbro Ulén, Katarina Kyllmar
Modeling Nitrogen and Phosphorus transport in a small agricultural stream in Eastern Sweden

17:30–17:50 Warwick Dougherty, Lucy Burkitt, Paul Milham, Deirdre Harvey
Prediction of runoff P concentration on diverse soils using routine soil P tests

17:50–18:10 Bettina Eichler-Löbermann, Thomas Krey
Effects of P fertilizing practices on soil P pools – temporal variations within a ten-year field experiment

18:10-19:00 Poster viewing

Thursday-Room A

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales (continued)
Chair: Peter Vadas, Antonio Delgado

9:00–9:40 **Keynote:** Peter Vadas
Modeling Field-Scale Phosphorus Transfer: Model Strengths and Weaknesses, Gaps in Knowledge, and the Role for Scientists

9:40–10:00 Csilla Farkas, Johannes Deelstra, Marianne Bechmann
Process-based modelling of phosphorus losses from an agricultural dominated catchment in S-E Norway

10:00–10:20 Chantal Gascuel-Odoux, Catherine Grimaldi, Nicolas Gilliet, Yannick Fauvel, Jean-Marcel Dorioz
Inter-comparison of suspended sediment and phosphorus fluxes and concentrations on two agricultural headwater catchments

10:20–10:40 Andreas Gericke
Sediment delivery – Limitations of empirical models in Bavaria

10:40–11:00 Nadia Glæsner, Charlotte Kjaergaard, Gitte H. Rubaek, Jakob Magid
Mobilization of slurry injected phosphorus during sequential irrigation and drainage cycles compared to continuous irrigation

11:00–11:30 Coffee break

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales (continued)
Chair: Phil Haygarth

11:30–12:10 Claudia Hahn, Volker Prasuhn, Christian Stamm, Rainer Schulin
Spatial Validation of a Rainfall-Runoff-Phosphorus (RRP) model

12:10–12:30 Leszek Hejduk
Daily fluctuation of phosphorus and nitrogen concentration based on automatic measurements

12:30–12:50 Pia Kynkäänniemi, Barbro Ulén, Masud Pagrave
Horse paddock as a hot spot for P leaching in a small Swedish catchment

12:50–13:10 Hanna Larsson, Kristian Persson, Karin Blombäck
Sensitivity Analysis of the Modified ICECREAM Model to Improve Parameterization for Swedish Conditions

13:10–13:30 Shijie Li, Philip Jordan, Joerg Arnscheidt

Phosphorus release and retention in Irish agricultural drainage ditches: a bed sediment P fractionation and EPC_0 study

13:30–15:00 Lunch

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales (continued)
Chair: Iggy Litaor

15:00–15:20 Annika Lindvall, Barbro Ulén, Ararso Etana, Lars Bergström, Peter Kleinman, Lennart Mattsson
The influence of soil and manure variables on phosphorus leaching from Swedish agricultural soils

15:20–15:40 M. Iggy Litaor, I. Chash, I. Barnea, M. Shenker
Assessment of Phosphorus Fertilizing Practices in Altered Wetland Soils Using Uncertainty Analysis

15:40–16:00 Jian Liu, Helena Aronsson, Karin Blombäck, Kristian Persson, Lars Bergström
Identification of Processes Controlling Phosphorus Leaching from a Long-term Field Experiment Using the ICECREAM Model

16:00–16:20 Ralph Meissner, Juliane Seeger, Holger Rupp, Peter Leinweber
Long term lysimeter experiments about the influence of irrigation on phosphorus leaching

16:20–16:50 Coffee break

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales (continued)
Chair: Oscar Schoumans

16:50–17:00 Yiannis Panagopoulos, Christos Makropoulos, Maria Mimikou
Multiobjective optimization for the allocation of cost-effective BMPs at the watershed scale

16:50–17:00 Paul Scholefield, Colin Vincent, Phil Rowland, Colin Neal
Spatial patterns of phosphorus in the Ribble and Wyre catchments, a source to sea approach

17:00–17:20 Oscar Schoumans, Caroline van der Salm, Piet Groenendijk
A new methodology to estimate *P*hosphorus *LEA*ching from *S*oils to the *E*nvironment (PLEASE)

17:20–17:50 Christian Stamm, Nadine Konz, Martin Frey, Volker Prasuh

Critical source areas - empirical evidence and consequences for implementation

17:50−18:10 Laura Turnbull, Richard E Brazier, John Wainwright
Monitoring and modelling Phosphorus dynamics during runoff events over a transition from semi-arid grassland to shrubland

18:10-19:00 Poster viewing

Thursday-Room B

Session: Monitoring phosphorus loss
Chair: Jerry Lemunyon

9:00–9:20 Lucy Burkitt, Warwick Dougherty, Ross Corkrey, Shane Broad
Phosphorus runoff risk from different fertilizer strategies using rainfall simulation and Bayesian modeling

9:20–9:40 Marta García Albacete, M. Carmen Cartagena, Beatriz López, María Requejo, Neila Gómez
Risk assessment of biowaste application in agriculture: runoff phosphorus loss with simulated rainfall

9:40–10:00 Kim A. Mack, Richard E. Brazier, Christopher (Kit) J. A. Macleod
Monitoring phosphorus loads from headwater grassland catchments in the South West of England

10:00–10:20 Ana Moreno Lamarca, Tom Vanwalleghem, Vidal Barrón, José Torrent, Armando Martínez Raya, Jose Ramón Francia Martínez, Belén Carceles, José Alfonso Gómez
Influence of soil management on phosphorus losses in olive orchards at the hillslope scale

10:20–10:40 T.Q. Zhang, Z.Q. Lin, C.W. Forsberg, C.S. Tan
Crop growth and phosphorus loss in a clay loam soil amended with Enviropig low-P manure

11:00–11:30 Coffee break

Session: Mitigation options
Chair: Rory Maguire, Antonio Delgado

11:30–12:10 **Keynote:** Rory Maguire
Moving towards manure phosphorus mass balance in watersheds through pyrolysis to biochar

12:10–12:30 Hans Estrup Andersen, Goswin Heckrath
A web-based P index as a mitigation planning tool

12:30–12:50 Patricia Chambers, Joseph Culp, Robert Brua, Glenn Benoy
Defining Phosphorus Concentrations to Prevent Eutrophication of Canadian Agricultural Streams

12:50–13:10 Jessica Coad, Lucy Burkitt, Warwick Dougherty, Leigh Sparrow
Reducing/omitting phosphorus fertiliser inputs to reduce Australian dairy pasture soil phosphorous concentrations

13:10−13:30 Dennis Collentine, Holger Johnsson,
Evaluation of agri-environmental schemes: Cost effectiveness of buffer zones to reduce phosphorus losses

13:30−15:00 Lunch

Session: Mitigation options (continued)
Chair: Rory Maguire

15:00−15:20 Clare Deasy, John Quinton, Chris Stoate, Alison Bailey
Evaluation of Constructed Wetlands as Mitigation Options for Phosphorus and Sediment within UK Agriculture

15:20−15:40 Arne Joelsson, Gert Erlandsson, Peter Feuerbach, Anna Hansson, Annika Henriksson, Torsten Kindt, Johan Kling, John Strand, Jonas Svensson, Erika Tollebäck, Katarina Vartia, Stefan Weisner
The Aquarius approach on mitigation of phosphorus losses

15:40−16:00 Joshua M. McGrath, Chad J. Penn, Frank J. Coale
In-situ treatment of agricultural drainage water using industrial by-products phosphorus sorbing materials

16:00−16:20 Alice R. Melland, Cathal Buckley, Phil Jordan, Sarah Mechan, Per-Erik Mellander, Ger Shortle, David Wall
The Agricultural Catchments Programme; an environmental and socio-economic evaluation of the Nitrates Directive National Action Programme in Ireland

16:20-16:50 Coffee break

18:10−19:00 Poster viewing

Friday-Room A

Joint Session IPW6 –COST 869 WG1: Phosphorus mobilization and modelling at the field and catchment scales (continued)
Chair: Oscar Schoumans

9:40−10:00 Barbro Ulén, Faruk Djodjic, Katarina Kyllmar
Phosphorus mobilisation and risk assessments in a small agricultural catchment with heavy clay soil

10:00−10:20 Caroline Van der Salm, Goswin Heckrath, Ruth Grant, Brian Kronvang, Clémentine Lévi, Matheiis Pleijter, Gitte H.Rubæk, Oscar F. Schoumans
Predicting phosphorus losses with the model PLEASE on a local and regional scale in Denmark and the Netherlands

10:20−10:40 Mats Wallin, Elin Widén-Nilsson
Uncertainty analysis of the FyrisNP model for source apportionment of phosphorus and nitrogen in catchments

10:40−11:00 Hubert Tunney, Robert J. Foy, Isabelle Kurz, David Bourke, David Kilpatrick
Phosphorus concentration in overland flow from grassland field plots

11:00−11:30 Coffee break

12:30−13:30 Conclusions and closure (Room A)

Friday-Room B

Session: Mitigation options (continued)
Chair: Wim Chardon

9:00–9:40 **Keynote:** Wim Chardon
Mitigation options implementation: from science to agricultural policy

9:40–10:00 Philip A. Moore, Jr., Jason de Koff, Rod Williams, Randy Young, Peter Kleinman
Reducing Phosphorus Runoff from Biosolids with Water Treatment Residuals

10:00–10:20 Ignatius Noij, Caroline van der Salm, Harry Massop, Matheijs Pleijter
Ranking high P load risk fields in a lowland plain for mitigation measures

10:20–10:40 Ignatius Noij, Marius Heinen, Hanneke Heesmans
Effectiveness of unfertilized buffer strips in the Netherlands: field study results

10:40–11:00 Gitte H. Rubæk, Charlotte Kjaergaard, Nadia Glæsner, Goswin Heckrath, Jakob Magid
Adapting agricultural practice to minimize P leaching

11:00–11:30 Coffee break

11:30–11:50 Martyn Silgram, Bob Jackson, John Quinton
Operationalising methods for minimising soil compaction and reducing soil erosion and diffuse pollution risk from wheelings in winter cereals

12:30–13:30 Conclusions and closure (Room A)

POSTERS

Phosphorus dynamics and cycling

PDC-1 *M. J. Beltran, E. Rivero, G. Cruzate, R. Casas, R Michelena, A. Mallarino*
Availability of Phosphorus and its Relationship with Some Micronutrients in a Vertic Argiudoll in Argentina

PDC-2 *Barbara J. Cade-Menun, Dean C. James, Guy Lafond*
Phosphorus under Long-Term and Short-Term No-Till in a Wheat-Pea Rotation with Five P Fertilization Rates

PDC-3 *Julie Campbell, Phil Jordan*
Comparative soil P changes following nutrient management planning

PDC-4 *Antonio Delgado, María del Carmen del Campillo, José Torrent*
Estimation of critical Olsen P values in reclaimed marsh soils from southwestern Spain

PDC-5 *Raniero Della Peruta, Armin Keller, Rainer Schulin*
Modelling Long-term Phosphorus and Trace Metal Accumulation in Swiss Agricultural Soil

PDC-6 *Paolo Demaria, Sokrat Sinaj, René Flisch, Emmanuel Frossard*
Soil properties and phosphorus isotopic exchangeability in agricultural temperate soils

PDC-7 *Ana Maria Dodocioiu, R. Mocanu, Daniela Dana*
The long-term evolution of phosphates from the Cambic Chernozem at Ards Caracal – Romania

PDC-8 *David Fanqueiro, Marta Roboredo, João Coutinho*
Effect of slurry acidification on phosphorous fractionation after soil application

PDC-9 *R. Ferreira, B. Pereira, J. Pinheiro, M. Roboredo, R. Brás, M. Matos, J. Coutinho*
Evaluation of soil test methods for the estimation of plant available phosphorus in soils derived from volcanic material

PDC-10 *György Füleky, László Tolner*
Recovery of sorbed fertilizer phosphorus by three water extraction methods

PDC-19 *Michał Gąsiorek*
Phosphorus status in intensively used soils in Krakow

PDC-12 *Camilla Giovannini, Josè M. Garcia-Mina, Claudio Ciavatta, Claudio Marzadori*
Organic-complexed superphosphate (CSP) and soil biological properties

PDC-13 *Carmo Horta, Marta Roboredo, João Coutinho, José Torrent*
Soil phosphorus evaluation: correlation between the Olsen and ammonium lactate extraction methods in Portuguese acid soils

PDC-14 *Carmo Horta, Fernando Monteiro, Manuel Madeira*
Phosphate desorption in Luvisols and Solonetz from a Mediterranean region

PDC-15 *Lars Stoumann Jensen, Jakob Magid*
The Long-term P and K Depletion Trial at Taastrup, Denmark

PDC-16 *Camilla Lemming, G.H. Rubæk, P. Sørensen, J. Petersen*
Phosphorus fertilization of maize seedlings using side-band injected animal slurry

PDC-17 *Jakob Magid, Pernille Hasse Busk Poulsen, Andreas de Neergaard, Lars Stoumann Jensen*
CRUCIAL: a long-term field trial to assess waste recycling impacts on environment and productions system integrity

PDC-18 *Paul J Milham, Warwick J Dougherty, Lucy L Burkitt, Paul J Nicholls*
Phosphate sorption by acidic soils

PDC-19 *Claudio Pérez, Juan Antelo, Sarah Fiol, Florencio Arce, Dora Gondar, Rocío López*
Modeling phosphate adsorption on a Brazilian Oxisol

PDC-20 *Verena Pfahler, Federica Tamburini, Stefano Bernasconi, Emmanuel Frossard*
Effects of plant uptake on the $\delta^{18}O$ signature of phosphate

PDC-21 *E. Rivero, G. Cruzate, M. Beltrán, S. Russo*
Spatial variability of phosphorus and its relationship with some of the chemical properties of soils in Argentina Republic

PDC-22 *M. Roboredo, J. Coutinho*
Using the anion exchange membranes to determine the phosphorus desorption of two distinct soils

PDC-23 *A. Shevtsov, T. Grebennikova, M. Genkin*
Influence of different types of nitrogen fertilizers on barley's phosphorus uptake and phosphorus content in barley's tissues

PDC-24 *Laetitia Six, Ruth Njoroge, Abigael Nekesa, Christoff Van Moorleghem, Elke Vandamme, Pieter Pypers, Erik Smolders, Roel Merckx*
Combining organic and inorganic amendments to improve maize growth and phosphorus availability in phosphorus deficient soils in Kenya

PDC-25 *Elke Vandamme, Pieter Pypers, Bernard Vanlauwe, Laetitia Six, Christoff Van Moorleghem, Roel Merckx*

Early root trait indicators for phosphorus uptake efficiency of soybean varieties in soils with low phosphorus availability

PDC-26 *Christoff Van Moorleghem, Erik Smolders, Fien Degryse, Laetitia Six, Elke Vandamme, Roel Merckx*
Comparison of colorimetric analysis, ion chromatography, ICP and DGT for model phosphorus solutions and natural water samples

PDC-27 *Noura Ziadi, Aimé Jean Messiga, Yichao Shi, Roger Lalande, Zheng-Yi Hu*
Soil P status under conventional and no-tillage systems in a long-term corn-soybean rotation conducted in eastern Canada

PDC-28 *Noura Ziadi, Jian-Ling Fan, Bernard Gagnon, Zheng-Yi Hu*
Soil P status following annual paper mill biosolids application in eastern Canada

Phosphorus in water bodies

PWB-1 *Barbara Cade-Menun, Lydia Smith, Jane Hill, Mary Watzin, Greg Druschel*
Phosphorus Characterization in Freshwater Lake Sediments using ^{31}P NMR Spectroscopy

PWB-2 *María Luz Iglesias, Rosa Devesa-Rey, David Rubinos, Francisco Díaz-Fierros, María Teresa Barral*
Evaluation of phosphorus sediment remobilization in the Anllóns River (NW Spain) using pH–stat kinetic leaching procedures

PWB-3 *Phil Jordan, Alice Melland, Rachel Cassidy*
Observations from high resolution nutrient monitoring in rivers

PWB-4 *Mari Räty, Helena Soinne, Markku Yli-Halla, Tommi Peltovuori*
Seasonal and spatial changes in easily soluble P in buffer zones under different management practices in Finland

PWB-5 *Mats Wallin, Pernilla Rönnback, Lars Sonesten*
Quantifying phosphorus transport in spring flow in two rivers in northern Sweden – implications for annual load estimates

Phosphorus mobilization and modelling at the field and catchment scales (Joint Session IPW6 –COST 869 WG1)

JS-1 *Daniela Dana, Maria Soare , Eugen Filice , Gheorghe Purnavel , Ana Maria Dodocioiu, Romulus Mocanu, Valentina Coteţ , Ioana Oprică, Adriana Grigore, Nicoleta Marin*
Phosphorus fertilisation in Romania

JS-2 *Farida Dechmi, Daniel Isidoro, Talel Stambouli*
Adaptation of the Phosphorus Index to irrigated areas in the middle Ebro Basin. Las Filadas watershed case study (Huesca, Spain)

JS-3 *Isabel Díaz, Fabrizio Ungaro, Vidal Barrón, María del Carmen del Campillo, Antonio Delgado*
Spatial distribution of soil phosphorus and implications for catchment-scale predictions of losses in South Spain

JS-4 *Isabel Díaz, Vidal Barrón, Carmen del Campillo, José Torrent, Antonio Delgado*
Phosphorus loss and forms in overland flow from two representative catchments from southern Spain

JS-5 *Dominique Gärtner, Armin Keller, Rainer Schulin*
Regional assessment of Phosphorus and trace metal accumulation in Swiss agricultural top soils due to manure application

JS-6 *Luz Iglesias, Rosa Devesa-Rey, Francisco Díaz-Fierros, María Teresa Barral*
Phosphorus transfer across boundaries: From basin soils to river bed sediments

JS-7 *Karin M. Johannesson, Pia Kynkäänniemi, Barbro Ulén, Stefan E.B. Weisner, Karin S. Tonderski*
Clay-bound phosphorus retention in wetlands – a catchment comparison

JS-8 *Phil Jordan, Alice Melland, Owen Fenton, Karl Richards, Rogier Schulte*
A model to predict soil P depletion to achieve agronomic and environmental objectives

JS-9 *Anders E Lindsjö, Karin Blombäck*
Pedotransfer Functions to Estimate Mineral Phosphorous Fractions and Dynamics in Swedish Agricultural Soils

JS-10 *Frank Schmieder, Karin Blombäck, Kristian Persson, Anders Lindsjö*
Modeling the Effect of Buffer Strips on Surface Losses of Particulate Phosphorus

JS-11 *Ahmed Skhiri, Farida Dechmi*
Impact of farming practices on phosphorus transport in an irrigated watershed in the middle Ebro Basin (Spain)

JS-12 *Maria Soare, Daniela Dana, Cătălina Câmpeanu, Nicoleta Marin, Ioana Oprica, Adriana Grigore*
The influence of nitrogen chemical sources from foliar fertilizers on P mobility in sunflower plant

JS-13 *Johan Strömqvist, Lotta Andersson, Göran Lindström*
Modelling of hydrology and phosphorus losses in catchments – the importance of spatial and temporal scale

JS-14 *Katie Tedd, Catherine Coxon, Anthony Mannix*
Meeting EU Water Framework Directive groundwater quality objectives: the challenge posed by phosphorus in western Irish karst aquifers

JS-15 *Karin S. Tonderski, Heinrich Taubald, Lotta Andersson, Rasmus Rönnberg, Joakim Ahlgren*
Oxygen isotopes in phosphate as a tracer for sources and pathways of catchment P in stream water

JS-16 *Fátima Troitiño, Mª Carmen Leirós, Carmen Trasar-Cepeda, Fernando Gil-Sotres*
P loss risk assessment by a modified P index method in the Fonte Espiño river basin (Galicia, NW Spain)

JS-17 *David P. Wall, Sarah Mechan*
Soil phosphorus management in agricultural catchments in Ireland

JS-18 *Ting Zhang, Trevor Page, Keith J Beven, Phil M Haygarth, A Louise Heathwaite*
Identification of Phosphorus transport and delivery critical source areas at the headwater catchment scale using a fuzzy-rule-based model

Monitoring phosphorus loss

MPL-1 *Martin S.A. Blackwell, Philip C. Brookes, N. de la Fuente-Martinez, P.J. Murray, K.E. Snars, J.K. Williams, P.M. Haygarth*
Effects of soil drying and rewetting on forms and quantities of phosphorus in leachate

MPL-2 *Barbara J. Cade-Menun, Courtney D. Giles, Jane E. Hill*
A concurrent time and depth assessment of soil and leachate phosphorus in poultry manure-amended soil columns

MPL-3 *Pierre Castillon*
Contribution of P supply to P losses from fields

MPL-4 *Warwick Dougherty, Lucy Burkitt*
Magnitude and duration of the 'incidental' fertilizer effect is influenced by soil P buffering properties

MPL-5 *Daniel Fiala, Pavel Rosendorf*
Variability of phosphorus load from agricultural land in Czech Republic Part I: baseflow condition

MPL-6 *Charlotte Kjaergaard, Gitte H. Rubæk, Goswin Heckrath*
Autumn tillage increases phosphorus leaching from fine textured soils

MPL-7 *Debbie McConnell, Donnacha Doody, Conrad Ferris, Christopher Elliott, Dave Matthews*
The effect of slurry application technique on phosphorus lossin overland flow

MPL-8 *Kristian Persson, Holger Johnsson, Anders Lindsjö, Kristina Mårtensson, Karin Blombäck, Martin Larsson*
Calculation of Phosphorus Losses from Swedish Agricultural Land in 1995 and 2005

Mitigation options

MIT-1 *Helena Andersson, Isak Svärd, Lars Bergström*
The importance of subsoil properties for P leaching and selection of effective mitigation strategies

MIT-2 *Marianne Bechmann, Anne Falk Øgaard*
Integrated mitigation strategy for phosphorus losses to the lake Vansjø, Norway

MIT-3 *Cathal Buckley*
The double dividend from efficient nutrient management of phosphorous inputs on intensively farmed agricultural land

MIT-4 *Jennine Jonczyk, Paul Quinn, David Rimmer Mark Wilkinson, Sean Burk*e
Proactive mitigation of nutrients at small catchment

MIT-5 *R. Mocanu, Ana Maria Dodocioiu, Daniela Dana*
Mitigation options of soil phosphorus losses by using organic-mineral fertilizers on slope soils from Romania

MIT-6 *Robert Summers, Nardia Keipert, Mark Rivers*
Improving water quality of diffuse and point sources with bauxite residue