Sustainable food production and air pollution: reducing emissions generates many benefits.


Programme Booklet
Background

Intensification of agricultural production has been key to world food supply but it has also led to negative effects, of which one of the less-well known is air pollution.

Agriculture contributes to increasingly dangerous levels of airborne particulate matter, which threaten human health; to the emission of reactive nitrogen components, which affect biodiversity; and to the emission of methane and nitrous oxide, both powerful greenhouse gases.

Air pollution also impacts on agriculture. This is particularly the case with atmospheric ozone, a strong oxidant, which negatively affects crop growth and yields. Atmospheric ozone is mainly formed through reactions of air pollutants from industry and traffic, but also of methane emissions associated with agriculture itself.

This event unites some of the world’s most renowned experts in these fields. In four keynote lectures, they present what we know – and what we don’t know - about emission trends, the types and importance of interactions with, and impacts on, agriculture; and what solutions are imaginable leading to lower levels of air pollution and increased crop production. This will be followed by a round table discussion focusing on future actions to control rising levels of air pollution with benefits for food production and, vice versa, the potential for reducing the influence of agriculture on air pollution, the value of regional cooperative efforts, and the role of institutions in raising awareness.

The event is organised by JRC scientists, in close collaboration with scientists and policy makers from the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP) and other key international organisations.
Programme

Friday 10 July, 9:30-12:45
EXPO Milano 2015, Barcelò Hotel, Milan

9:00 Registration

9:30 Welcome address –
David Wilkinson, Director, European Commission, Joint Research Centre, Italy. EU Commissioner General for EXPO 2015

9:45 How are air pollution and agriculture related?
Frank Dentener, European Commission, Joint Research Centre, Italy; Co-chair of the Task Force on Hemispheric Transport of Air Pollution

10:05 Ozone and agriculture: an unknown threat
Lisa Emberson, Director, Stockholm Environment Institute, York, UK

10:30 Break

11:00 How can emission reductions help to bring multiple benefits?
Markus Amann, Programme Director, International Institute for Applied Systems Analysis, Austria.

11:25 Controlling environmental nitrogen, how can it be done, how will it reduce impacts?
Mark Sutton, Centre for Ecology & Hydrology, UK, co-chair of the Task Force on Reactive Nitrogen

11:50-12:45 Roundtable discussion with policy makers and scientists; conclusions.
Markus Amann, International Institute for Applied Systems Analysis, Laxenburg, Austria.
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Markus Amann is Program Director for ‘Mitigation of Air Pollution and Greenhouse Gases’ at the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. He coordinates the policy analyses on cost-effective emission control strategies for clean air and climate policy proposals of the European Commission and the Convention on Long-range Transboundary Air Pollution. He serves at the Science Advisory Panel of the Climate and Clean Air Coalition (CCAC) and the Climate and Clean Air Commission of the Austrian Academy of Sciences.

Frank Dentener, European Commission, Joint Research Centre, Ispra, Italy.
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Frank Dentener is a climate scientist with a particular interest in the linkages between atmospheric pollution, climate change, agriculture and health. Frank has (co-) authored more than 160 peer-reviewed publications and 3 IPCC reports, and was selected by Thomson-Reuters for the prestigious list of Highly Cited Researchers 2014. Since 2000, Frank works as a scientist at the European Commission’s Joint Research Centre. He is an expert on large scale modelling of atmospheric pollution, the global nitrogen cycle, large-scale ozone changes and co-benefit analysis of air pollution and climate mitigation options. Frank co-chairs the UNECE’s Task Force Hemispheric Transport Air Pollution, with the objective to identify and evaluate the benefits of mitigation strategies to reduce air pollution throughout the Northern Hemisphere. As member of the International Commission on Atmospheric Chemistry and Global Pollution he contributes to defining an interdisciplinary research agenda for atmospheric chemistry research, addressing the basic societal issues of water supply, food production and human/ecosystem health.
Lisa Emberson
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Lisa Emberson is an environmental scientist whose research focuses on developing eco-physiological modelling methods to understand the deposition and exchange of air pollutants in relation to C, N and water vapour cycling in forests, crops and grassland ecosystems. Lisa obtained her PhD in Air Pollution Biology from Imperial College, London. Since then she has (co-) authored ~ 50 peer-reviewed publications and has acted as lead author on a number of global assessments (UNEP’s Global Environment Outlook; UNECE’s Hemispheric Transport of Air Pollution; the Global Energy Assessment (GEA); UNEP/WMO Ozone and Black Carbon Assessment) which have synthesised scientific research for policy and decision makers. Lisa entered the Stockholm Environment Institute (SEI) in 1999 and is now the Centre Director of SEI’s York office. She is an expert in developing risk assessment methods to help define air quality guidelines for policy and was instrumental in helping develop the UN LRTAP ‘Critical Level’ air quality targets. She also advised the Malé Declaration on methods to control and prevent air pollution in South Asia.

Gina Mills
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Gina Mills is a plant ecophysiologist specialized in quantifying the impacts of air pollution on vegetation, having originally conducted her PhD on the mechanism of action of herbicides. Her current research includes experimental investigations of the effects of ozone (alone and combined with nitrogen pollutants, drought and/or flooding) on plant and soil processes using solardome- and field-based exposure systems at the Centre for Ecology and Hydrology. Gina is the Head of the Programme Coordination Centre for the ICP Vegetation, a programme involving over 200 scientists, that reports to the UN LRTAP Convention on air pollution impacts on vegetation. In this role, Gina has been instrumental in the development and application of flux-based critical levels for ozone for the UN Gothenburg Protocol, collating field evidence of ozone effects and quantifying the economic losses due to ozone effects on crops in Europe. Gina is also a component leader for the EU FPVII ECLAIRE project and is actively involved in the IGAC Global Tropospheric Ozone Assessment Report.
Mark Sutton,
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Mark Sutton’s interests focus on the emission and atmospheric transfer of reactive nitrogen compounds, especially ammonia, and the relations with greenhouse gas balance, and eutrophication. He is engaged in developing a multi-pollutant approach for nitrogen, with special attention to the fate of emissions from agriculture. Mark is Chair of the International Nitrogen Initiative (INI) of IGBP / SCOPE, and Co-Chair of the UNECE Task Force on Reactive Nitrogen (a body under the Geneva Convention on Long-range Transboundary Air Pollution). He coordinated the EU NitroEurope Integrated Project and led the European Nitrogen Assessment (ENA), the first continental multi-threat assessment of nitrogen impacts on climate, air pollution, water quality, soil quality and biodiversity, published in April 2011. He also led the “Our Nutrient World” report for UNEP, published in 2013. Currently Mark is coordinator of the EU ÉCLAIRE project, on the effects of climate change on air pollution threats to European ecosystems, and is a member of the Steering Group of the UNEP led Global Partnership on Nutrient Management (GPNM).

Maurits van den Berg
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Maurits van den Berg is an agronomist working at the Monitoring Agricultural Resources Unit of the Joint Research Centre (JRC) of the European Commission. Maurits spent about half of his professional career in the tropics, as researcher and lecturer in Brazil, Mozambique, and South Africa. Further assignments include Wageningen University, the PBL Netherlands Environmental Assessment Agency, the African Studies Centre (Leiden), and the International Soil Reference and Information Centre. The redline in his career is pursuit for improved understanding of the different domains of sustainability of agricultural systems in different parts of the world and at varying spatial and temporal scales.
Martin Williams  
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Martin Williams is a Professor of air quality at King’s College, London, UK. He was (until 2014) Chairman of the Executive Body of the UNECE Convention on Long Range Transboundary Air Pollution (CLRTAP) and formerly chair of the CLRTAP EMEP Steering Body. He has authored papers on urban air quality, vehicle emissions and the links between air quality and climate change including *inter alia* the policy section of the UNEP Assessment of Short Lived Climate Forcers. Prior to this, he was Head of the Air Quality programme of the UK’s Department for Environment Food & Rural Affairs (Defra), where he had responsibility for air quality policy, industrial pollution control and research. At King’s College, his research interests lie in the application of science to policy in air quality and climate change.

Roald Wolters  
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Roald Wolters is a policy officer working for the European Commission’s DG Environment. Roald is responsible for national and international discussions and negotiations regarding air quality and emissions of certain atmospheric pollutants. Previously he was the Dutch representative in European Committees and Working Parties on the Environment regarding air pollution and Head of the Dutch delegation to the (Executive Body and Working Group on Strategies and Review from the) UNECE Convention on Long-range Transboundary Air Pollution (CLTRAP).