



Dr Philip C Stevenson

Head of Chemical Ecology

Agriculture, Health and Environment Department

Natural Resources Institute, University of Greenwich, Chatham, Kent ME4 4TB, UK

Royal Botanic Gardens, Kew, Surrey TW9 3AB, UK.

E mail: p.c.stevenson@gre.ac.uk

Biography – Dr Philip C Stevenson

Phil Stevenson is Professor of Plant Chemistry at the Natural Resources Institute (University of Greenwich) where he is Head of the Chemical Ecology. He holds a dual position as Head of Biological Chemistry at the Royal Botanic Gardens, Kew. Phil's research has focussed on the biological and ecological role of plant chemicals and understanding how these compounds can be used to support sustainable agriculture. This work includes research on pollen and nectar chemistry to determine their role in pollinator behaviour and health and behavioural ecology, natural pest resistance in crops to identify breeding traits and the optimisation of pesticidal plants (botanical insecticides) as environmentally benign and affordable alternatives to synthetic insecticides. Phil leads a variety of major research and development projects funded through UK Research and Innovation (BBSRC, GCRF), McKnight Foundation, European Union and USDA and NSF (USA). Phil's research has been published in 150 international journal articles, books and books chapters including in *Science*, *Current Biology*, *Ecological Monographs*, *Ecology*, *Journal of Ecology*, *Scientific Reports* and *Functional Ecology*. Phil's is Subject Editor at the *Bulletin of Entomological Research*, Regional Editor of *Biopesticides International* and Editorial board member of *Crop Protection* and *Plants, People, Planet*. He is a Fellow of the Royal Entomological Society and Member of the British Ecological Society.

Presentation title: Pesticidal plants can provide effective and environmentally benign pest management for small holders

Abstract

Plants provide a diversity of entomotoxic and insect deterrent compounds that have potential in the development of new pest management products for pest insects. Regulation in many countries is stimulating a resurgence in commercial development of new plant biopesticides that are environmentally benign and safer for human use, but expansion of the commercial botanical insecticides sector is still relatively weak. Small holder farming however has always depended on plants as a source of pest control materials and it is these stakeholders who continue to have the most to gain from natural plant-based pesticides. Numerous indigenous and exotic species of plants with pesticidal activity have been reported but few have been validated on-farm and assessed both in terms of the pest control and economic benefit to farmers. Here, recent laboratory-based analysis and evaluation of key pesticidal plants in Africa will be reviewed along with field trials supporting their activity by small holder farmers evaluating their efficacy, economic benefits and scope for widespread uptake and deployment. The reduced impacts on beneficial insects including pollinators and natural enemies of pests through the use of pesticidal plants will also be reported from our work on legume crops in Africa. Current research also shows that some pesticidal plants can be grown in field margins to provide easy access to materials for farmers as well as providing natural enemies and pollinators with nectar, refuge and alternative sources of prey food supporting mixed ecological approaches to pest management in beans. Pesticidal plants can therefore contribute effectively to sustainable agricultural intensification in small holder farming systems.