Professor Sarah Jane Gurr

Chair in Food Security, Exeter University, from February 2013, *previously* Professor of Molecular Plant Pathology, University of Oxford. email: *S.J.Gurr@exeter.ac.uk*

ISPP VP "manifesto": I am delighted to be nominated as a candidate for the position of ICCP VP as from 2018. I believe this is a pivotal role being a) to support the President b) to raise awareness of food security in the global context of plant disease biology and crop losses c) to advise on policy issues and d) to ensure succession and training. I have summarised my various skills and achievements in the short *curriculum vitae* attached below. I believe these show my "passion" for plants and great interest in plant disease biology, and mitigation. The prose also outlines the various leadership roles I have undertaken in the quest for Global Food Security. I take much pleasure in speaking about this subject and have given over 3000 lectures to scientific audiences, undergraduates, politicians and the public. I would wish to raise awareness of and to ensure succession in our fascinating world of plant pathology.

Short Summary: Prof. Sarah Gurr studied at Imperial College of Science, Technology and Medicine (BSc ARCS DIC and PhD), where she was awarded The Huxley Medal for her outstanding record of achievement. She was a post-doctoral Fellow in Fungal Biology at St Andrews University and then held an independent Royal Society University Research Fellowship in Molecular Plant Pathology. She was appointed, firstly as Lecturer, then Reader and Professor at Oxford (and Fellow of Somerville College), where she held a Leverhulme Trust Royal Society Senior Research and a NESTA Fellowship. Sarah was appointed to the Chair in Food Security, a post created by Exeter University in association with BBSRC and Rothamsted Research, in 2013. She was formerly President of The British Society of Plant Pathology and currently sits on BBSRC Council. Her interests are in crop diseases (notably of rice and wheat), with particular emphasis on fungal infestations and in their global movement and control. She has authored or co-authored aver 120 publications, including a contribution to the recent Government Foresight report on "Biological Hazards". Sarah has held the Donder's Chair (Honorary) at Utrecht University, 2016-2017, and is currently Erskine Fellow at Canterbury University, Christchurch, NZ.

Education and Degrees

BSc. Hons. (Biological Sciences), ARCS, Imperial College of Science, Technology & Medicine
PhD (Plant Pathology), DIC, Imperial College of Science, Technology & Medicine, MA (Oxon)

Academic and Stipendiary Positions

1979 – 1980	Research Assistant, Shell Research International, Sittingbourne, UK
1984 – 1989	Post-doctoral Fellow, St Andrews University, UK
1989 – 1990	Post-doctoral Fellow, Leeds University, UK
1992 – 2002	University Lecturer, University of Oxford, UK
1992 – 2013	Tutorial Fellow (Daphne Osborne Fellow) Somerville College, Oxford, UK
2002 – 2004	Reader, Plant Sciences, University of Oxford, UK
2004 – 2013	Professor of Molecular Plant Pathology, University of Oxford
since 2012	BBSRC Council, reappointed 2016
2015 -	Head of School, University of Exeter

Awards and Honours

1980	Huxley Memorial Medal, awarded to outstanding graduate student of Imperial College *and* Bedingfield & Crawford student scholarships
1984	Social Blue for "services to wine-tasting /College cellar", Imperial College
1990 – 1992	Royal Society University Research Fellow
2002 – 2003	Royal Society Leverhulme Trust Senior Research Fellow, Oxford, UK
2006	University of Oxford, Award for Excellence of Teaching
2004 – 2007	National Endowment for Science, Technology and Arts (NESTA) Fellow
2009 – 2010	President, British Society for Plant Pathology
2014	Elected to AcademiaNet / Outstanding Female Academic / Robert Bosch Stiftung, with Spektrum der Wissenschaft / Dr. Angela Merkel
2014	University of Exeter teaching award, final short-list
2016	Hon. Donder's Chair, Utrecht University
2016	Royal Botanic Garden, Kew, Hon. Research Associate

2017 Scottish Government – appointed to review Plant Health Scotland
2017 Erskine Fellowship, University of Canterbury, Christchurch, New Zealand

Professional Activities (at various times):
The Royal Society Soiree and Travel Awards Committee, Dorothy Hodgkin URF Committee
Board of Directors of Rothamsted Research & Science Advisory Group
British Mycological Society Council
Senior Editor; Phys & Mol Plant Path & Molecular Plant Pathology. Food Security (current)
Chair, Christopher Welch DPhil studentship committee & Newton Abraham Professorial Board Curator, Oxford University Botanic Garden
Biochemical Society Awards committee (current)
BBSRC Committee B
BBSRC Council member; Remunerations and Research Advisory Committees; Chair, LoLa committee (2015): Chair, Review of Bioinformatics and Mathematics provision at BBSRC Institutes (2013); Chair, Review of Microbiology portfolio (2015); Chair, BBSRC / DEFRA FC Tree Health Initiative Round 1 (2012 /2013)
Review of James Hutton Institute (2013)
Invitations to give named and plenary lectures – most recently Enid MacRobbie lecture at Cambridge (2017) and Margaret Savigear lecture at Sheffield (2017)

Funding: I received continuous BBSRC funding, as PI, at Oxford and now in Exeter (PI on IPA on fungal cell wall, ash dieback, co-I on equipment grant and on 2 IPAs on dimorphism and fungicide resistance emergence). I founded a company, MycoSciences in 2015. I have/had 27 PhD studentships (100% completion), plus 4 interdisciplinary studentships, predominantly funded by BBSRC (12 CASE awards).

Publications and Patents: Over 120 papers, edited 2 books and hold 6 patents.
Selected recent papers only:

- Geoghegan, I Steinberg, G and Gurr S.J. (2017) The role of the fungal cell wall in the infection of plants. ***Trends in Microbiology*** (*in press*)
- Geoghegan, I and Gurr S.J. (2017) Investigating chitin deacetylation and chitosan hydrolysis during vegetative growth in *Magnaporthe oryzae*. ***Cellular Microbiology*** DOI 10.111/cmi.12743
- Fones, H., Fisher, M and Gurr, SJ (2017) Emerging fungal threats to plants and animals challenge ariculture and ecosystem resilience/ **The Fungal Kingdom APS Press** and ***Microbiol Spectrum 5*** (1) FUNK - 0027
- Fisher, M, Gow, N and Gurr, SJ (2016) Tackling emerging fungal threats to animal health, food security and ecosystem health ***Phil Trans R Soc*** B 371 1709
- Geoghegan, I and Gurr SJ (2016) Chitosan mediates adhesion and is required for surface sensing and morphogenesis in *Magnaporthe oryzae*. ***PLOS Pathogens*** 12 e10005703
- Lin, C, Schuster, M, Guimaraes, SC, Metz, J, Ashwin, P, Schrader, M, Hacker, C, Gurr, SJ, Steinberg, G (2016) Active diffusion and microtubule-based transport oppose myosin forces to position organelles in cells. ***Nature Communications,*** **7**: 11814
- Bebber, D, Delgado, A and Gurr, SJ (2016) Modelling fungal pathogen infection risk with climate reanalysis data. ***Proc Royal Soc B*** 371 1709.
- Che Omar, S*,* Bentley, M, Morieri G, Preston, GM and Gurr, SJ (2016) Validation of reference genes for robust qRT-PCR cell wall gene expression analysis in the rice blast fungus *Magnaporthe oryzae.* ***PLOS One*** **11**:e0160637
- Schuster, M, Martin-Udiroz, M, Higuchi, Y, Hacker, C, Steinberg, N, Gurr, SJ, Steinberg, G (2016) Cell wall-forming enzymes are co-delivered in the same vesicle for coordinated formation of the fungal cell wall. ***Nature Microbiology*** **1**:16149
- Samalova, M, Melida, H, Vilaplana, F, Bulone, V, Soanes, D, Talbot, NJ and Gurr, SJ (2016) The β-1,3-glucan glucanosyltransferases affect the structure of the rice blast fungal cell wall during appressorium-mediated plant infection**.** ***Cellular Microbiology*** **19 3**
- Le Cocq, K, Gurr, SJ, Hirsch, P and Mauchline, T (2016) Exploitation of endophytes for sustainable agricultural intensification. ***Molecular Plant Pathology*** 18 3
- Falloon, P, et al., (2015) Using climate information to support crop breeding decisions and adaptation in agriculture*.* ***World Agriculture*** **5** 25-42
- Orr, R, Murray, P, Eyles, C, Blackwell, M, Cardenas, L, Collins, A, Dungait, J, Goulding, K, Griffith, B, and Gurr, SJ *et al*, (2016). The North Wyke Farm Platform: effect. ***Eur J Soil Science*** DOI: 10.1111/ ejss.1235
- 3 papers in ***Fungal Genetics and Biology*** (2015, Ed G Steinberg) on *Zymoseptoria* (Fones H and Gurr SJ ***FGB*** **79** 3: Fones H *et al.,* ***FGB*** **79** 89: Kilaru S *et al.,* ***FGB*** **79** 228).

- Bebber, D, Holmes, and Gurr SJ (2014) The global distribution of crop pests and pathogens, ***Global Ecology and Biogeography*** **23**:1398
- Bebber, DP, Holmes, T, Smith, D and Gurr SJ (2014) Economic & physical determinants of global distributions of crop pests & pathogens. ***New Phytologist 202***:901.
- Bagchi, R, Gallery, RE, Gripenberg, S, Gurr, SJ, Narayan, N, Addis, CE, Freckleton, RP, and Lewis, OT (2014) "Pathogens and insect herbivores drive rainforest plant diversity and composition*".* **Nature *506***:*85*.
- Samalova, M, Meyer, A, Gurr, SJ, Fricker, MD (2014). Robust anti-oxidant defences in the rice blast fungus Magnaporthe oryzae confer tolerance to the host oxidative b*urst.* ***New Phytologist 201****:556.*
- Bebber, DP, Ramotowski, MAT, Gurr, SJ (2013). Crop pests and pathogens move poleward in a warming world. ***Nature Climate Change 3***: 985
- Fisher, M, Henk, D, Briggs, C, Brownstein, J, Madoff, L, McCraw, S and Gurr, SJ, (2012) "Emerging fungal threats to animal, plant and ecosystem health" ***Nature***, **484**:185
- Samalova, M, Johnson, J, Illes, M, Kelly, S, Fricker, M, and Gurr, SJ, (2013) "Nitric Oxide generated by the rice blast fungus drives plant infection" ***New Phytologist***, **197**: 207
- Martinez, D *et al* "Comparative analysis of *Trichophyton rubrum* and related dermatophytes reveals candidate genes involved in infection" (2012) **M*Bio*** 3: 5e00259-12
- Spanu, P., *et al* (2010). Genome expansion and gene loss in powdery mildew fungi reveal trade-offs in extreme parasitism. ***Science*** **330**:1543
- Rodgers, C, Blandford, C, Armstrong, F and Gurr, SJ (2010) Designer laccases; a vogue for high potential fungal enzymes?" ***Trends in Biotechnology*** **28**: 63
- Skamnioti, P, and Gurr, SJ (2009) Against the grain: safe-guarding rice from rice blast disease. ***Trends in Biotechnology*** **27**:141

Policy publication

- McLean, A, Koa, R and Gurr, SJ, (2012) "WP16: Prediction for biological hazards: Reducing the impacts of future biohazards through innovation and intervention" ***Government/BIS Foresight Programme*** (*commissioned report*)