Programme

Global food security: the role of science and technology

Wednesday 17 – Friday 19 October 2012 | WP1189

As the world’s food system becomes increasingly stressed by the growing demand for greater quantities and varieties of nutritious food the role of science and technology is becoming more important in decision-making. Scientific advancements can hold the key to higher yields, greater resilience, more efficient land use and reducing waste. Such advances will be critical in feeding the world’s population. But key questions are raised in relation to how scientific advances can be best implemented:

- How to balance scientific advances with other political, government, regulatory actions and alternative strategies to increase availability and access to food?
- Who funds research? What is the role of the private sector vis a vis government?
- Who will benefit from scientific advances?
- Is acceptance of science in developed countries the gateway to scientific advances and use in developing countries?
- How to ensure fairness in their application, for instance supporting smallholder farmers?
- How to engage the public?

The objectives of the conference are to provide an opportunity for dialogue between policy makers, scientists, academics, the private sector and other experts, and to address these questions and identify how best to harness the scientific and technological advances that are currently being promoted or are in the pipeline, and their practical application.

This conference will discuss these questions in the context of changing agricultural systems, future crop breeding and the role of genetically modified organisms (GMO’s), and key questions of who funds research, intellectual property rights, regulation, and accessibility to and implementation of new technologies.

This conference is the fourth in a series on ‘Agriculture, food and land use: the international policy challenges’ which Wilton Park is running over 3 years in association with the University of Exeter. The previous three conferences have focused on: volatility and markets; land use; and sustainable diet and nutrition.
**Wednesday 17 October**

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<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>1600-1630</td>
<td>Participants arrive and tea/coffee available</td>
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<tr>
<td>1630-1650</td>
<td><strong>Welcome and introduction</strong></td>
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<td><em>Iain Ferguson</em> Chairman, Wilton Park</td>
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<td><strong>Reprise:</strong> Key learning from the three previous Wilton Park conferences in the series which focused on policy options in response to increased volatility, global land use, and the place of diet and nutrition**</td>
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<td><em>Michael Winter</em> Director, Centre for Rural Policy Research, University of Exeter, Exeter</td>
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<tr>
<td>1650-1745</td>
<td><strong>1. The role and priorities of science and technology in meeting the global food and nutritional security needs of the 21st century</strong></td>
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<td><strong>Chair: Iain Ferguson</strong>, Chairman, Wilton Park</td>
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<td>What are the global food and nutritional needs in the coming 20 years? How is the context of agricultural production changing, for instance with population growth, climate change and global commodity trading? How is the role of science and technology in improving food and nutritional security changing in response? What areas of research should be prioritised in future? What is the geographical variation in research priorities, for instance Europe, USA, Brazil, Africa? Will scientific advances in one part of the world be adaptable to others? How can science and technology adapt to deal with changing agricultural patterns?</td>
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<td><strong>Terri Raney</strong> Chief Editor of 'The State of Food and Agriculture' publication; Senior Economist, Food and Agriculture Organisation, Rome</td>
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<td><strong>Mike Bushell</strong> Principal Scientific Advisor, Syngenta, Bracknell</td>
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<tr>
<td>1745-1810</td>
<td>Tea/coffee</td>
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<td>1810-1915</td>
<td><strong>2. How to improve agricultural systems through existing and new science and technology</strong></td>
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<td><strong>Chair: Iain Ferguson</strong></td>
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<td>How can science and technology ensure sustainable production in different agricultural production systems? To what extent are simple low-tech new practices being implemented in the areas of low production? How to bridge the gap between new priorities and existing knowledge and potential technological solutions? How can there be a coordination of research across different agricultural systems? To what extent is organic farming compatible with the needs of sustainable intensification? Can integrated crop-livestock systems be replicated around the world? How will arid areas sustain their populations?</td>
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<td><strong>Douglas Jackson-Smith</strong> Professor of Sociology, Utah State University, Logan</td>
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<td><strong>Mike Gooding</strong> Chairman, Oxford Farming Conference; Managing Director, FAI Farms Ltd, Wytham</td>
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<td>1915</td>
<td>Drinks reception</td>
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<td>1945</td>
<td>Dinner hosted by <strong>Iain Ferguson</strong> with after dinner speaker</td>
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<td><strong>Paul Smith</strong> Head, Seed Conservation Department and Millennium Seed Bank, Kew Gardens, Kew</td>
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0800-0845 Breakfast

0900-1030 3. How science and technology is advancing agriculture and food security: case studies

**Chair:** Robin Hart, Director of Programmes, Wilton Park

How are scientific advancements developing to address growing populations and new markets? What lessons from recent advancements could be applied elsewhere? Will improvements be driven by their cost-benefit? Will the developing world have its own advances or continue to be “given” a version of those used in the developed world? How will traditional and new technologies cohabit? Will some systems risk falling behind if they don’t promote the right kind of scientific and technological investment? What forms of communication are best placed to encourage the sharing of scientific and technological advancements?

**Lessons from Brazil**

Zander Navarro
Researcher, CECAT, Embrapa; Visiting Professor, Graduate Programme of Rural Extension, Federal University of Viçosa, Brasília

**Lessons from the increased yields of the British beet sugar industry**

Simon Harris
Adviser, Associated British Foods, London

**Lessons from the development of Golden Rice**

Adrian Dubock
Project Manager, Golden Rice; Executive Secretary and Member, Golden Rice Humanitarian Board, Dornach

1030-1100 Photograph followed by tea/coffee

1100-1300 4. Plant breeding for the 21st century: lessons from the field

**Chair:** Michael Winter, Director, Centre for Rural Policy Research, University of Exeter

What challenges face plant breeding? How can plant breeding take care of nutritional needs? What can be done to protect seed varieties and prevent monocultures? What role for genetically modified organisms (GMOs) in future plant breeding? Does regulatory burden rule out GMO benefits in many crops or economies? What advantages for producers whether large scale or for small-holders including in developing countries?

Wayne Powell
Director, Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth University, Aberystwyth

Swapan Kumar Datta
Deputy Director General (Crop Science), Indian Council of Agricultural Research, New Delhi

David Johnson
Senior Scientist, International Rice Research Institute (IRRI), Manila

Augustine Langyintuo
Head of Policy and Partnerships Programme, Alliance for a Green Revolution in Africa (AGRA), Nairobi

José Maria Ferreira Jardim da Silveira
Associate Professor, Institute of Economics, University of Campinas (UNICAMP), Campinas

1300-1500 Lunch
5. Improving crop protection: advances and challenges

Chair: Iain Ferguson

What advances are likely to be made in crop protection in the coming years? What challenges need to be addressed? How to integrate pest management? Challenges of regulating crop protection.

Tom Lyall
European Government Affairs Leader, Dow AgroSciences, Brussels; representing CropLife International

Diane Castle
Consultant, DC Consulting, Kingsbridge; representing CropLife International

6. Science and the interface with farmers: improving agricultural extension

Chair: Iain Ferguson

How to improve the interface between scientists and the farmer? How to improve agricultural extension? What are the barriers? What are the enablers? How can smallholders benefit from enhanced plant breeding? How can farmers and producers shape the scientific research agenda?

Narendra Pratap Singh
Director, Indian Council of Agriculture Research (ICAR) Research Complex for Goa, Goa

7. Setting the policy context: Who funds? Who regulates? Who implements?

Chair: Keith Goulding, Head, Department of Sustainable Soils and Grassland Systems, Rothamsted Research, Harpenden

Presentation in plenary followed by discussion in smaller groups

Should funding come from the public, charitable, philanthropic and/or private sector? Who (if anyone) has the right to prioritise one area of research over another? How to ensure smallholders are not disadvantaged by large-scale private sector investment? How to ensure new science can be implemented by farmers? How can extension be improved?

Catherine Moreddu
Senior Agricultural Policy Analyst, Organisation for Economic Co-operation and Development (OECD), Paris

Discussion in smaller group

3-4 discussion topics from the options below: (participants to choose)

- Funding: Who should fund research in future? What balance between government and private sector? Who sets priorities? Who will lead research?
- Turning strategy into action: How to turn innovative ideas into commercially viable products? What are the barriers? What more could be done to get more innovation to market?
- Agricultural extension: How to share the new technologies from the market place to the farmer? What works well? How to overcome the barriers to extension? Who should fund?
- Regulation: What sort of regulation should be in place? What body can ensure regulation is upheld?
- Small-holders: How to support small-holders? How should the research needs of small-holders be met? How to capture their requirements? Balancing their needs versus the needs of the large producers? How to maximise access to innovation?
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<tr>
<td>1900</td>
<td>Drinks reception</td>
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<td>1930</td>
<td>Conference dinner hosted by Richard Burge, Chief Executive, Wilton Park</td>
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Friday 19 October

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<th>Time</th>
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<tr>
<td>0800-0845</td>
<td>Breakfast</td>
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  Feedback from discussion groups and round-table discussion  
  Chair: Keith Goulding |
| 0930-1030  | 9. Working within international frameworks                           
  Chair: Robin Hart  
  How to ensure that scientific advancement fits within international frameworks of trade and intellectual property but is not hampered by them? How can intellectual property rights mechanisms ensure continued investment in plant breeding? How to ensure new technologies can be developed and shared? What international frameworks might need to be adapted? What scientific findings could be game-changers (synthetic biology, test tube meat, artificial photosynthesis) and how will their development and use be regulated globally?  
  The benefits and negative effects of the traditional approach to intellectual property  
  Claude Henry  
  Professor of Sustainable Development, Sciences-Po, Paris and Colombia University, New York  
  The impact of international trade and investment law on new technologies: the case of artificial photosynthesis  
  Thomas Faunce  
  Professor, College of Law and College of Medicine, Biology and the Environment, Australian National University, Canberra |
| 1030-1100  | Tea/coffee                                                           |
| 1100-1215  | 10. The application of new science: how to ensure acceptance and accessibility  
  Chair: Michael Winter  
  How to ensure greater understanding by policy makers of scientific advances? How to shape national and international policies to support scientific advances? How to increase understanding amongst the wider public? What role for education and communication? What role should the international community play to ensure access to agricultural scientific advancements, particularly for those in developing countries? How to share intellectual property rights? What can policy makers do to enable new scientific advances to be taken up? What can be done to promote an open and reciprocal relationship between small-holders and scientists? How can new advances benefit and improve the position of women in agriculture?  
  Ian Boyd  
  Chief Scientific Adviser, Department for Environment, Food and Rural Affairs (Defra), London  
  Nnaemeka Ikekwuonu  
  Executive Director, The Smallholders Foundation, Owerri  
  Helen Browning  
  Chief Executive, Soil Association, Bristol |
11. Concluding round-table discussion: how best to leverage science and technology in meeting global food and nutritional security?

Chairs: Iain Ferguson and Michael Winter

Roundtable discussion to address:

i. What are the priority areas for the application of science and technology?
ii. What policy changes are needed to make this happen?
iii. How to ensure public and private sectors work better together to best advantage?

Group discussion on how to take this discussion forward and the next (and final) 2 conferences in this series.

1300 Lunch

1400 Participants depart