

Food Futures in the World: Seminar series in 2015

Wednesday 8 February 2015

Professor Andrew Balmford

Feeding the world without costing the earth

Opinions over how to limit the immense impact of agriculture on the rest of biodiversity are divided: is it better to retain on-farm wildlife but at the cost of lowering yields, or to increase yields, limit the area needed for farming and thereby retain larger areas under natural habitats – or indeed something between the two? Professor Andrew Balmford will introduce a model designed to answer this question, and review the empirical evidence to date. He will conclude that this largely supports the second, so-called land-sparing approach to reconciling agriculture and farming, but that important questions remain: over the generality of these findings for different biota and for ecosystem services, over how best to increase yields while limiting environmental externalities, and over how to couple yield growth to habitat retention and restoration. (www.worldwildlife.org/videos/feeding-the-world-without-costing-the-earth)

Wednesday 4 March 2015

Dr Tim Fox

Food Wastage and Global Food Security

Today, we produce about four billion metric tonnes of food per annum. Yet due to poor practices in harvesting, storage and transportation leading to losses, as well as market and consumer waste, it is estimated that 30–50% (or 1.2–2 billion tonnes) of all food produced never reaches a human stomach. Furthermore, this figure does not reflect the fact that large amounts of water, energy and land are used unnecessarily in the production of foodstuffs which simply end up as wastage. This level of resource waste is a tragedy that cannot continue if we are to succeed in the challenge of sustainably meeting human needs in the 21st Century. Dr Tim Fox will present the findings of the Institution's two recent reports in this area, 'Global Food: Waste Not, Want Not' and 'A Tank of Cold: Cleantech Leapfrog to a More Food Secure World' and consider what engineers, governments, businesses and the public need to do to reduce food wastage and thereby help underpin international food security.

Wednesday 11 March 2015

Dr Astley Hastings

Resource competition: Supporting a growing population whilst reducing greenhouse gas emissions

The numbers of humans on living on Mother Earth is rapidly increasing from the 7.2 billion today who are currently consuming the output of more than one planet. Improvements in agriculture has provided a more plentiful and richer diet and advances in medical science and its practice has reduced infant and maternal mortality and increased longevity. This reduction in mortality and current fertility rates has locked in population growth rate of around 1% per year that will lead to a population of between 9-10 billion by 2050 and over 11 billion by 2100. These technological and scientific advances are made possible by consuming energy, to make chemicals and products and power machinery to do work for us. This energy is mainly derived

from coal, oil and natural gas, whose energy release emits greenhouse gasses that warms the climate and threatens the environment in which we live. The existing population with its current economic activity is already challenging the availability of resources or water, land, minerals and energy. However, adding an extra 30% of humans and satisfying their living standard aspirations whilst reduce greenhouse gas emissions will cause an intense competition for these resources. This presentation will explore this competition and the apparent dichotomy between economic activity and greenhouse gas emission reduction.

Wednesday 22 April 2015

Dr Shailaja Fennell

Smallholder agriculture and food security: examining the routes for diversifying and sustaining rural livelihoods in sub-Saharan Africa

Smallholder farmers in developing countries face large-scale information asymmetry that prevent sustainable production and can result in the exploitation of the farming community. The challenge is particularly acute for women farmers, who face the greatest structural constraints to accessing information, despite their critical role in food production and family nutrition. While agriculture is an important engine of growth and poverty reduction in developing countries, growth arising from expansion of land under cultivation tends to correlate with low levels of poverty reduction while the gains achieved with agricultural technologies have led to increasing productivity and gains in wealth. A recent trend in the agriculture sector has been to improve informational access for appropriate production planning, use of improved seeds and planting materials, suitable cultivation practices, effective post-harvest management, storage, value addition and marketing. A particular advance has been through the use of mobile phones to provide agricultural information to farmers in Sub Saharan Africa since 2007, partly in response to the decline in the provision of traditional extension services but also in recognition of the potential for mobile phones and tablet devices to revolutionize the provision of information to farmers.

This presentation will review the current situation of small holders in improving food production and the feasibility of the global agenda of ensuring diversification and sustainable livelihoods for this group of farmers. There will be a particular focus on the obstacles posed by poor connectivity in Sub-Saharan rural areas that prevent ICT from benefitting small holders. The opportunity presented by recent improvements in access to finance via mobile telecommunication and the need to build on this advance through the provision of cheap and sustainable energy will be explored. The institutional and structural features that currently hinder advances in technology dissemination will be reviewed and need for livelihood sensitive approaches that recognise the diversity of small holders in sub-Saharan ecologies will be emphasised.

Wednesday 6 May 2015

Professor Sir Brian Heap

Can GM crops help to feed the world?

The reasons why food security has become such a key issue in the international agenda are numerous - demand exceeding supply, land use degradation, and sporadic price increases leading to social unrest. Currently the world has more than enough food, but some 1 billion people still

go hungry. Food redistribution is only part of the solution. Appropriate and intermediate technologies all have their place, and conventional plant breeding remains as great an influence as it has for hundreds of years.

The advent of molecular plant breeding throws up core questions about what it is that scientists seek to do when building new genetic traits into seeds. Even though they can improve yield and disease resistance, and provide health promoting properties, solutions have provoked both hopes and fears. Do they result in a fundamentally altered relationship of humankind to nature?
