

Will an innovative and sustainable food system supply nine billion shoppers?

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Abstract

Recent global events have demonstrated food supply and consumer demand are finely tuned and not as flexible as many consumers in Europe have come to expect. This has placed the issue of food and beverage supply firmly in the policy development arena. The indicators of global food price show primary food commodities including small grains, oils and dairy products have doubled and, in some cases tripled, in price since 2006. Indeed, the term ‘food security’ is routinely used in the current UK government vocabulary after a long absence (Defra, 2008). Although the value of food has increased, Euro-monitor statistics show us nearly 50% of Europeans believe the food they eat is bad for them (Bánáti, 2008). This cannot only be due to circumstance alone since the food industry is one that aims to deliver pleasure and lifestyle not fear. Indeed, commentators in the USA state ‘Europeans want DNA-free food’ in order to be safe in jest (Venter, 2008). Perceived food safety is not a global standard and a forum for rational debate in Europe is required especially when such humour is just a little too close to the truth. The ‘Supplying Sustainable and Innovative Food and Drink Solutions’ conference and collection of papers will present innovative food science solutions that are being developed with consideration of cultural and consumer demands. Indeed, it will partly provide a forum for debate.

Ultimately, supply of food is determined by agricultural production. Low crop yields and high food waste will not offer food security (FAO, 2008) and it is increasingly clear that agronomic and biotechnological applications must have a clear role in developing food security. Indeed, in some-part, recent increases in food price have been underpinned by the global balance between cereal production (influenced by crop yield) and storage (influenced by waste production). It is likely that limited food supply will incite much innovation and we must determine how innovative food science can fit emergent cultural trends that define the consumer and shopper choices of tomorrow. The management of world food supply is not a yield or production issue alone. Nutritional value, consumer behavior and the infrastructure of the supply chain in the food system are of key importance. This has provided the impetus for ‘Supplying Sustainable and Innovative Food and Drink Solutions’. These complexities are practically presented here (Smith, 2008; this volume) and reviewed (Martindale & Swainson, 2008; this volume).

Europe has a large diversity of food and drink recipes that are intimately associated with cultural and economic activities. These relationships manifested in landscape, application of technologies, public health and agri-food supply chains are explored with regard to the influence of food assurance (Glass, 2008; this volume) and provenance (Knapper, 2008; Martindale & Richardson, 2008; this volume). Technologies are often applied within management systems and the following papers on carbon and energy management embody this offering new outlook on carbon and energy management (Wiltshire *et al.*, 2008; Stichnothe *et al.*, 2008; Martindale *et al.*, 2008; this volume). An emergent theme from the following papers is that culture, consumers and

food science must be combined in a meaningful way for the development of a food system that meets our expectations.

References

- Bánáti, D. 2008.** Fear of food in Europe? Fear of foods in Europe through Hungarian experience. *Trends in Food Science & Technology* **19**:441–444.
- Defra. 2008.** *Ensuring the UK's Food Security in a Changing World: A Defra Discussion Paper.*
- FAO. 2008.** *Raise farm production to end food crisis – Diouf, FAO Director-General testifies before Italian Parliament.* Press release 17 September 2008, Rome.
- Glass R. 2008.** **Title of paper.** *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Knapper S. 2008.** The importance of innovation in developing and promoting regional food and drink. Yorkshire and Humber - a case study and discussion paper. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Martindale W, Richardson P. 2008.** Food and beverage carbon dioxide emission from producer to consumer - applying and communicating LCA. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Martindale W, Swainson M. 2008.** Developing supply chain innovations - requirements for research and challenges for the food industry. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Martindale W, McGloin R, Jones M, Barlow P. 2008.** The carbon dioxide emission footprint of food products and their application in the food system. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Smith B G. 2008.** Sourcing from more sustainable agriculture. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Stichnothe H, Hispida A, Azapagici A. 2008.** Carbon footprint estimation of food production systems: The importance of considering methane and nitrous oxide. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.
- Venter J C. 2008.** *On the verge of creating synthetic life.* TED. http://www.ted.com/index.php/talks/craig_venter_is_on_the_verge_of_creating_synthetic_life.html.
- Wiltshire J J J. 2008.** The contribution of primary food production to lifecycle greenhouse gas emissions of food products. *Aspects of Applied Biology* **87**, *Greening the Food Chain, 3 and 4*, pp. xxx–xxx.