

1 out of 27—European politicians score poorly in agbiotech

To the Editor:

We wish to express our concern and dismay at the apparent lack of intergovernmental engagement by European governments regarding the proven positive roles of modern biotechnologies as key tools supporting efforts to address the issue of food security, especially in developing countries. This was shown clearly by the failure of 26 of the 27 member states of the European Union to send any official government delegations to participate and engage in the recent United Nations Food and Agriculture Organization (FAO; Rome) intergovernmental conference (ABDC-10) on 'Agricultural biotechnologies in developing countries' (<http://www.fao.org/biotech/abdc/en/>). The Netherlands was the only EU member state to send an official government delegate to ABDC-10.

The conference¹, which took place in Guadalajara, Mexico, on March 1–4, 2010, was concerned with the full range of agricultural biotechnologies used in food and agriculture, including the improvement of plant varieties and animal populations to increase their yields; characterization and conservation of genetic resources; plant or animal disease diagnosis; vaccine development; improvement of feeds; and the safety of foods. The meeting also crossed different sectors, covering crops, livestock, forestry, agro-industry, and fisheries and aquaculture.

Around 300 policy makers (government representatives), scientists and representatives of intergovernmental and international nongovernmental organizations came together at the meeting from 68 different countries. The conference was co-sponsored by the International Fund for Agricultural Development and also involved the Consultative Group on International Agricultural Research, the Global Forum on Agricultural Research, the International Centre for Genetic Engineering and Biotechnology and the World Bank. Previous FAO International Technical Conferences on related topics, such as genetic resources

for food and agriculture, have been fully attended by EU member states and have led to agreement on International Plans of Action.

Over the past few years, there has been a great deal of rhetoric from EU governments and national European organizations about the importance of global food security and the need for a multi-pronged approach from both developed and developing countries. The desirability of a "multifaceted and linked global strategy... to ensure sustainable and equitable food security" was highlighted recently by an eminent group of European experts that included the UK government chief scientist, John Beddington². It was therefore surprising that only one European government thought it worthwhile to take advantage of the unique opportunity presented by the FAO conference to engage with several hundred policy specialists and agricultural experts from over 50 developing countries in a forum specifically targeted at developing approaches and alliances to increase global food security.

In contrast to the no-shows from EU member states, which collectively aspire under the Lisbon Agenda to become a knowledge-based bio-economy region, the United States sent a high-level official government delegation of >20 officials, scientists and policymakers led by Roger Beachy, director of the US Department of Agriculture National Institute of Food and Agriculture and a senior member of US President Obama's science team. It was clear

that the US government regards agricultural biotechnologies as a key area in which its own public and private sector R&D can be usefully deployed to assist in the challenge of food security in developing countries.

Many ABDC-10 delegates expressed puzzlement at the stark lack of attendance from official EU government representatives and the negative message that this conveyed about the willingness of European



ABDC-2010 is the 2nd FAO conference to focus on the potential of agbiotech in developing countries.

countries to facilitate the exploitation of European agricultural biotechnology research for the strengthening of food security in developing countries. This was even more ironic given the fact that the International Steering Committee for the FAO conference had significant representation of technical and policy expertise from Europe (including signatories of this letter).

For genetic modification (GM)-phobic European policymakers, it should be emphasized that one clear message from the FAO conference was that modern agricultural biotechnologies are about much more than genetic engineering. Indeed, although genetic modification technologies are constantly being improved and are making important contributions to crop breeding, they are only one component of the overall agricultural biotechnology toolkit required for science and technology to strengthen food security in developing countries. Other biotechnologies that have already contributed greatly to developing country crop, forestry, fisheries and livestock improvement include advanced

tissue culture, artificial insemination and reproductive technologies, mutagenesis/TILLING, marker-assisted selection and micropropagation. Like GM, all of these biotechnologies have also benefited from new advances in research over the past few decades. In addition to their vital contributions to breeding, biotechnologies are also playing key roles in improving the cultivation and management of crops, forestry, fisheries and livestock. For example, crop management is benefiting from new biotech-based strategies for pest and disease control (including diagnostics), as well as the increasing use of biofertilizers as an alternative to expensive nonrenewable chemical inputs.

As stated in the conference report¹, there was strong consensus at ABDC-10 that future progress for global food security will require the deployment of the whole range of both new and traditional biotechnologies, in combination with other less high-tech methods in the context of a more needs-driven rather than technology-led approach. Organizations representative of end-users, especially smallholders, should, where possible, participate in the process of crop, forestry, fisheries and livestock improvement. In the context of climate change and other environmental uncertainties that are likely to increase both biotic and abiotic stresses, there may be many cases where broad adaptability and yield robustness, rather than high yields *per se*, should be the primary focus of crop and animal improvement. It was also agreed that access to agricultural biotechnologies should be improved, for example via North-South collaborations and private-public partnerships. Finally, the sometimes inconsistent and onerous regulatory burdens that policy makers have devised regarding some biotechnologies (that is, GM) were felt to be a major impediment to any possibilities for their dissemination and exploitation by developing countries for the benefit of poorer smallholder farmers.

In one of the final sessions of the FAO conference, a European participant confessed to being “ashamed” at the lack of participation by European governments. He was not alone. This was an opportunity missed by EU member states and has certainly raised questions in some developing countries regarding the willingness of EU member states to close the widening biotech gap between rich and poor countries, in a manner that could reduce poverty levels and strengthen food security in developing countries. Rather than focusing on inward-looking debates on issues such as the intricacies of GM crop regulation,

European governments and policy makers should realize that there is a broad range of agricultural biotechnologies (including, but by no means restricted to, GM) that can make a huge contribution to assisting humanity tackle the immense task of feeding itself sustainably in an era dominated by the uncertainties of population growth, climate change and rapidly escalating global demand for food, feed and energy. As our US colleagues might say, European governments and their policy makers should “wake up and smell the coffee.”

COMPETING FINANCIAL INTERESTS

The authors declare no competing financial interests.

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1. Food and Agriculture Organization of the United Nations (FAO). Agricultural biotechnologies in developing countries: options and opportunities in crops, forestry, livestock, fisheries and agro-industry to face the challenges of food insecurity and climate change (Abdc-10), Guadalajara, Mexico, 1–4 March 2010 <<http://www.fao.org/fileadmin/templates/abdc/documents/report.pdf>> (FAO, Rome, Italy, 2010).
2. Godfray, H.C. *et al* *Science* **327**, 812–818 (2010).

Split approvals and hot potatoes

To the Editor:

The letter by Gerhart Ryffel in the April issue¹ outlines some of the public perception concerns surrounding the European Union's (EU; Brussels) recent sanctioning of the cultivation of a genetically modified (GM) potato—the first for any GM plant in 12 years. But readers should be far more concerned about the form of approval granted by EU authorities. Registration of BASF's (Ludwigshafen, Germany) Amflora was only for commercial production of starch for industrial purposes, not for food use. This ‘split approval’ is a disaster waiting to happen.

Amflora was created because of a limitation of conventional potato varieties. Such potatoes contain starch granules made up of two glucose polymers: amylopectin, a highly branched molecule, and amylose, which has a linear arrangement. Although the alignment of the linear amylose chains in potatoes may be useful in food preparation (e.g., for setting sauces on cooling) and contributes to the consistency of potatoes as a foodstuff, it is undesirable and must be removed in many industrial applications, such as making the coating on glossy printing paper. The availability of Amflora

means that potatoes with low-amylose starch appropriate for industrial uses will now be grown in Europe and offer economic benefits to local industry and farmers.

All well and good. But the decision of EU regulators to provide a split approval, which permits animal feed or industrial uses but not human consumption, is

likely to invite all sorts of mischief. One only need look no further than the debacle surrounding a similar decision by the US Environmental Protection Agency (EPA) over a decade ago on a recombinant DNA-modified corn variety called StarLink that contains a bacterial protein, Cry9C, toxic to certain lepidopteran insects².

Because of unresolved dubious concerns about

possible allergenicity of the novel StarLink protein—which, similar to many known allergens, takes slightly longer than most proteins to be digested in a laboratory simulation of digestion—the EPA approved the variety only for animal but not human consumption.

Following StarLink's commercialization, an activist organization paid a laboratory to test a large selection of packaged food products made with corn (including corn chips, tortillas and taco shells) and found the

