

CropLife still committed to assessment's original aims

SIR — Your Editorial 'Deserting the hungry?' (*Nature* 451, 223–224; 2008) discusses CropLife's decision to withdraw from the World Bank-led International Assessment of Agricultural Science and Technology for Development (IAASTD). As president of CropLife, I wish to confirm that the decision was not taken lightly, given our commitment to agriculture, development and sustainability.

We have been actively involved in the assessment since its inception and we remain committed to its original aims. These were to reduce hunger and poverty, to improve rural livelihoods and to facilitate equitable, environmentally, socially and economically sustainable development through generation, access to and use of agricultural knowledge, science and technology.

Unfortunately, we do not believe that the current draft assessment adequately reflects the role that modern science and technology, and in particular our own industry's technologies, have played in supporting agriculture. In our view, the IAASTD's treatment of biotechnology, crop-protection chemistry, the importance of intellectual property and the role of the private sector has been superficial and negative. Also missing is a vision of science and technology's future contribution to all types of agriculture.

The Editorial focuses on biotechnology, one technology among many that will enable farmers to select the right tool at the right time. We agree that there is no single solution, which means that a range of technologies, modern and traditional, need to be available and that valid, real-world solutions should not be ignored.

We support initiatives to help the rural poor and hungry by providing balanced information about the most appropriate technologies available to improve crop quality and protect the environment. We encourage your readers to look at other reports, such as the 2008 *World Development Report* from the World Bank (<http://tinyurl.com/6h8bz4>) or the Food and Agriculture Organization's 2004 *State of Food and Agriculture Report* (<http://tinyurl.com/63kr62>). Both of these highlight the importance of technology in achieving a productivity revolution, particularly for smallholder farming.

CropLife remains an open and engaged partner with the World Bank and all stakeholders — including governments, international institutions and civil society — to ensure that the original commitments of the IAASTD are honoured.

As stated in the Editorial, we continue to be open-minded about the IAASTD, and we hope that the final report will have

corrected the inadequacies of earlier drafts. But it would be counterproductive for us to endorse the current draft.

Howard Minigh

CropLife International, Avenue Louise 143, B-1050 Brussels, Belgium

Italy must invest more in science and technology

SIR — Silvio Berlusconi and Walter Veltroni, the leaders of the two major political parties taking part in Italy's elections on 13 and 14 April, have been debating issues critical for the future of the country's economy — with one crucial omission. Neither of these has mentioned increasing investment in science, technology and education.

Europe and North America realize that their twentieth-century economies, based on manufacturing industry and commerce, are rapidly disappearing under the pressure of emerging economies and globalization. The economy of the twenty-first century will hinge on investment in science and technology — as the US Congress was advised in a 2007 report by the US National Academies, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. The European Union has come out with the Lisbon strategy, intending to become "the most dynamic and competitive knowledge-based economy in the world", by investing 3% of gross domestic product in research by 2010 (<http://tinyurl.com/59phnh>).

Italy is not following the Lisbon strategy and today is one of the European countries investing least in research (less than 1.5% of GDP — in contrast to 3.86% by Sweden, 2.51% by Germany, 2.13% by France and 1.73% by the United Kingdom, for example (*Nature* 451, 378; 2008)). Italy has only 2.7 scientists per 1,000 of the population, whereas the European average is five and the US average is six. Without more investment, the Italian economy will certainly suffer, to the detriment of the coming generation.

The sparse attention to science in the Italian election campaign reflects a lamentably low interest in science nationwide. Some believe that the Italian university system is not competitive, so no more money should be spent on it until appropriate reforms have been carried out. But reform will not be possible without a sustained increase in research investment. At present, the research budget covers only staff salaries and there is no scope for encouraging the best scientists with increased funding.

Perhaps the scientific community in Italy has failed to communicate effectively the importance of science in the skilled employment and innovative enterprises that

are key to our future prosperity. Nonetheless, our national administrators must take this on board and make investment in research and technology the highest priority.

Ivano Bertini*, **Silvio Garattini†**, **Rino Rappuoli‡**

*Center for Magnetic Resonance, University of Florence, 50019 Sesto Fiorentino (FI), Italy

†Mario Negri Institute, 20157 Milan, Italy

‡Novartis Vaccines and Diagnostics, via Fiorentina 1, 53100 Siena, Italy

Cleaning up the final phase of the fossil-fuel industry

SIR — Neil Wilson is concerned about technologies that accelerate a net release of fossil carbon to the atmosphere, as he says in his Correspondence (*Nature* 451, 768; 2008) about our Letter (*Nature* 451, 176–180; 2008). My co-authors and I share his concern. Fossil fuels will supply society at some level for at least another half-century, given current economic imperatives, although clean-energy cycles that involve zero-carbon emission will ultimately be nuclear in nature, with fusion in the form of solar energy and fission in the form of geothermal energy.

It is therefore crucial to clean up the fossil-fuel industry quickly and economically. Carbon capture and storage are, in theory, deployable. In practice, these are hindered by the enormous number of effective retrofitted storage projects that are needed, and by economic models that allow fossil-energy recovery processes based on existing technologies to be very profitable.

Our Letter is about deep subsurface biodegradation of crude oil and the nature of the deep subsurface biosphere. It raises the possibility that acceleration of this process could provide methane, or even hydrogen, from spent oilfields or as an alternative energy vector for heavy-oil energy recovery. Although this approach remains speculative, it could provide natural gas or hydrogen with low energy and water input, instead of environmentally expensive heavy oil.

Methane and hydrogen are preferable to coal and heavy oil as fuels. The technology — if feasible — could be introduced by the oil industry without major changes in infrastructure or work practices.

This attempt to clean up the final phase of the fossil-fuel industry quickly is one justification for our work at a time when everyone would prefer clean, zero-carbon emission energy to be readily available. Changes in human imperatives call for bold decisions by shareholders, voters and legislators to force rapid and convincing changes in the energy industry.

Steve Larter

Petroleum Reservoir Group, Department of Geology and Geophysics, University of Calgary, Calgary, Alberta T2A 1N4, Canada