# Conclusions

**Jim Peacock**

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This morning we received a challenge from Chris Gallus as to how the conclusions from this conference could improve the effectiveness of Australian aid. Earlier today we all heard about Mrs Namurunda, who is a very important lady, and a farmer. We got a clear message that Mrs Namurunda is very much interested in food security for her family. She is interested in increasing crop yield and guaranteeing food production every year. She is also interested in gaining an income from her work on her farm.

Gordon Conway made a very strong argument against simple redistribution of food surpluses from developed to developing countries to resolve food shortages in the latter countries. The clear conclusion was that agriculture does provide the way forward, and that it does depend upon the sustainable use of natural resources. We can't get away from using natural resources but these can be used and replaced in a sustainable system. In this way we can provide food for the world and provide economic growth, even for the rural poor. A fair conclusion is that biotechnology – I'm not equating that to genetically modified crops – is important. It provides an important new set of tools for plant and animal improvement.

It generates faster and smarter conventional improvement programs and the knowledge gained with the new power of biological research is clearly giving us a healthier environment; and human health will be improved too.

In the course of discussion, there was a small debate about agro-ecology. The important thing is that biotechnology is now adding a powerful new tool to the science of agro-ecology and the synergies of those sciences is generating new options for agro-ecology which will provide the basis of sustainable agricultural systems. We must strive for integrated total crop or total farm management. In Australia, the most important thing about the use of the *Bt* gene in cotton is not the immediate reduction in insecticide use, but that for the first time we have a real platform for integrated pest management.

Mrs Namurunda would clearly like to have access to the new knowledge and the improvements derived from that knowledge. Jim Ryan pointed out that new developments in agriculture, using these tools, are reducing the time lag from research to practice. What wasn't said today, however, is that some of those improvements are taken to the farmer in the friendliest possible way, as a seed. This has built-in intelligence, and is a great partner for Mrs Namurunda, providing an instant-adoption technology.

Now, is it safe for humans? There are 53 million ha of transgenic crops around the world; they probably yield about 170 million tonnes of produce per year – a business of about $50 billion Australian per year. There are at least a hundred billion – perhaps a thousand billion – meals consumed each year that include transgenic crop produce. As far as I know, there has never been a single reported case of harm to any human on the planet. I wonder just how far must we go with the precautionary principle. The regulatory attention given to transgenics is perhaps even greater than that given to any introduced conventional foods. Although there may be distrust of scientists and of

DR JIM PEACOCK AC is Chief of CSIRO Plant Industry, which is recognised internationally in the field of plant molecular biology. In the Australia Day Honours, 1994, he was made a Companion of the Order of Australia for his contribution to the nation. In 2000 he was a co-recipient of the Inaugural Prime Minister's Science Prize and in May 2000 he was elected President of the Australian Academy of Science. Jim Peacock has active research programs in the induction of flowering, a major developmental decision in plants; in the molecular genetics of seed development; in plant haemoglobin; and in the molecular biology of stress responses in plants. Jim Peacock is prominent in the interfacing of plant science with modern agribusiness.

governments as Louise Sylvan said, for the most part we depend upon our regulatory bodies, and so we must strive to see that their performance is absolutely top class.

With regard to the environment, just as for food, developments must be evaluated on a case-by-case basis and so broad generalisations are often not very useful. Each case has its own particular questions that must be answered.

Liz Dennis defined transgenic plants as those having had genetic material inserted into their genome in a laboratory. Now the greatest laboratory that we have on this planet is nature, including evolution: evolution has given us some of the most supreme solutions to problems that we could hope for. You have seen for example the use of the *Bt* solution in crops and how much better we might expect to manage the environment in agriculture if we wisely use that gene: surely we must use the results of nature's experiments.

I draw attention to the necessity for partnerships. Gordon Conway emphasised the importance of choice, and that what you decide is the really important thing. One message we should take home – not only to the Australian AID agencies but also to all the AID agencies – is the importance of the objective: 'what is the most important thing we are trying to achieve?' Whether by conventional breeding or transgenic breeding, genetic improvement is very complex, as you've seen. To develop new varieties and get them into use in developing countries, for the benefit of those countries, requires a great deal of cooperation by many, many institutions. One of the major downfalls of AID agencies at the moment is that there is too much ad hoc, single-agency operation.

My conclusion is that biotechnology research has greatly increased the rate at which we acquire new knowledge about how living things develop and function. It has already led to substantial improvements in yield and more sustainable food production. Biotech-driven improvements, whether transgenic or conventional, that lead to greater yields and surety of food supply, should be adopted and made available to developing countries as soon as possible if proven to be safe and positive to human health and the environment. 'Made available' means working with the people of the developing countries and Harry Nesbitt gave us a truly wonderful example of how this can work if done properly.

Finally, the introduction of transgenic technologies needs to be not only adequately regulated but also properly managed. If we don't bring the management aspect in as a package, we risk failure. We simply cannot have failure of this new technology in any aspect – social, environmental or economic – successful enhancement of food supply is our goal.

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The publication below discusses the global setting for international agricultural research. The website of the Cooperative Group for International Agricultural Research (CGIAR) (http://www.cgiar.org/) provides other information.


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