The promise and the reality of 'pro-poor GM crops' in the developing world

GM traits commercialised to date	GM traits on the way?
Herbicide tolerance – designed to sustain sales of herbicide. Insect-resistance – a useful trait, but a one-dimensional approach to the risks faced by small-scale farmers.	Drought tolerance? Salt-tolerance? Nutritional enhancements?
GM crops commercialised to date Only cotton and maize: almost exclusively cash crops for fibre and animal feed, not food crops for consumption.	**GM crops on the way?** Rice? Pigeonpeas? Goundnuts? Chickpeas?

More reading

Made by Monsanto: the Corporate Shaping of GM Crops as a Technology for the Poor, STEPS Working Paper 11 by Dominic Glover (2008).
ISBN 978 1 85864 548 4

Pathways to Sustainability: an overview of the STEPS Centre approach by Melissa Leach, Ian Scoones and Andy Stirling (2007).
ISBN – 13: 978 1858646561

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Credits

This briefing was written by Dominic Glover and edited by Julia Day.

About the STEPS Centre

The STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) is an interdisciplinary global research and policy engagement hub uniting development studies with science and technology studies. We aim to develop a new approach to understanding, action and communication on sustainability and development in an era of unprecedented dynamic change. The STEPS Centre is based at the Institute of Development Studies and SPRU Science and Technology Policy Research at the University of Sussex with a network of partners in Asia, Africa and Latin America and is funded by the Economic and Social Research Council. Find out more: www.steps-centre.org

Contact us

STEPS Centre, Institute of Development Studies, University of Sussex,
Brighton BN1 9RE, UK
Tel: +44 (0)1273 915673
Email: steps-centre@ids.ac.uk
Web: www.steps-centre.org

Institute of Development Studies

University of Sussex
SPRU – Science & Technology Policy Research

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GM crops: a 'pro-poor technology'?

From STEPS Working Paper 11:
Made by Monsanto: the Corporate Shaping of GM Crops as a Technology for the Poor

STEPS briefing 11

We often hear that genetically modified (GM, transgenic) crops are urgently needed to kick-start agricultural development and overcome poverty, hunger and malnutrition in the global South. But the experiences of the Chinese, Indian and South African smallholders growing GM crops have been mixed.

A major international review of agricultural science and technology for development (the IAASTD) recently observed that transgenic crop technologies hold risks as well as opportunities for poor farmers. Beneficial impacts depend on a range of important socio-economic, agronomic and institutional factors, quite apart from the performance of the technology itself.

Bt cotton test / Andhra Pradesh, India / Dominic Glover

The 'first generation' GM crops are widely acknowledged to have been designed to meet the needs of large-scale commercial farmers in industrialised countries. For instance, GM herbicide-tolerant plants were actually designed to help sustain sales of herbicide.

Clearly, there is a disconnection between the story of GM crops as a technology that has something to do with poverty alleviation and development, and the types of GM crops that have actually been developed and commercialised to date. So, where did the story of GM crops as a 'pro-poor' technology come from?

At least in part, it came from the agricultural biotechnology industry. One key source of the story was the large, high-profile American agribusiness and biotech company, Monsanto, which has played a leading role in the commercial development of GM crops. But why would a publicly listed transnational company want to promote its technologies as beneficial for poor people? Wasn't it all a matter of public relations spin and media manipulation? The real answer is rather more complicated than that.

"The gap remained between the storyline of GM crops as a pro-poor technology and the types of crops and traits that were actually being developed and commercialised"

Telling tales to make strategy

In the 1960s and 1970s, the costs and risks of using toxic chemicals in agriculture were becoming clear to everyone. The growth of environmentalism and the costs of complying with new environmental regulations and liabilities were piling up problems for the manufacturers of pesticides, including Monsanto.

In the eyes of many people, the promise of biotechnology was nothing less than revolutionary. Transgenic crops would overturn the chemical-dependent paradigm of agriculture and create a cleaner, greener, more sustainable future in farming. They would 'feed the world without costing the Earth'.

In the 1970s, however, nobody could really be sure how the new technology would develop, or how to make a profitable business out of it. In that context, the storyline of sustainable biotechnology played a crucial role in helping to justify the huge sums of money that Monsanto's leadership was beginning to spend on biotechnology.

The bigger the risks attached to continuing with current ways of conducting business could be made to appear, and the greater the commercial opportunities of doing them differently with new technology could be made to seem, the easier it would be to persuade both employees and investors to support what was an inherently uncertain strategy.

Focusing on small-scale farmers

As this process unfolded, developing countries and smallholder farmers took on much greater importance for Monsanto. The company became a major player in the seeds business in the developing world. In those countries, inevitably, the company's attention turned increasingly towards smallholders alongside the more prosperous farmers.

Thus, when Monsanto faced a backlash against crop and food biotechnology in the late 1990s, the story of GM crops as a sustainable, environmentally friendly and developmental technology was ready to provide a framework for the company's effort to defend itself. Meanwhile, with European markets closed to GM crops for an indefinite period, developing-country markets took on an even greater commercial importance for Monsanto.

In these ways, developing-country farmers became key symbolic stakeholders in debates about agricultural biotechnology. But the gap remained between the storyline of GM crops as a pro-poor technology and the types of crops and traits that were actually being developed and commercialised.

GMO Trial, Cotton farm, South Africa / Brasil2 / iStockphoto

Looking forward

But aren't there new and more obviously 'pro-poor' GM crops coming down the track, not all of them developed by agribusiness companies? It is true that a different group of actors, not just the biotech industry, is behind some of the current GM crop development projects for the developing world.

Unfortunately, companies are not the only ones capable of promoting a 'pro-poor technology' storyline while their strategy takes them in another direction. Will a transgenic crop like nutritionally-enhanced rice be pro-poor just because its champions say it will and even passionately want it to be? There can and often will be a considerable gap between rhetoric and reality.

The allure of GM crops as a technology for the poor is a seductive one, but it is helpful to know that that storyline was at least partly a creation of the biotech industry. Transgenic crop technology does indeed have the potential to contribute to improvements in agricultural productivity, nutrition and economic development. But there is no necessary link between a claim that GM crops will produce such benefits and their likely impacts in reality. That should be reason enough for policy analysts and decision-makers, agronomists and farmers to treat such claims with a suitable degree of caution.

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