

Compromise sought on 'Terminator' ...

[LONDON] Scientific advisers to the United Nations Biodiversity Convention have given a mixed response to a more farmer-friendly alternative to the controversial 'Terminator' technology, in which seeds are genetically modified to become sterile after one season's planting.

The alternative is being dubbed 'Trait-specific Genetic Use Restriction Technology', or T-Gurt. Like Terminator seeds — another type of Gurt — T-Gurt seeds are also being developed by the agro-chemical industry, notably the US company Monsanto and the British company AstraZeneca. Unlike Terminator seeds, however, T-Gurt seeds do not become sterile after a season's planting.

T-Gurt seeds are genetically modified to produce specific traits, such as tolerance to salt or drought. If a farmer wished to activate the trait in one type of T-Gurt, he would have to spray the seed with a proprietary chemical. The seed will still germinate without the chemical, but it would not have the modified characteristics.

Representatives of countries in the European Union, Latin America and southeast Asia gave a cautious welcome to T-Gurts at a meeting of the biodiversity convention's scientific advisory board in Montreal this week.

But scientists from African countries have joined conservation groups such as the Rural Advancement Foundation International (RAFI) in Canada in urging the convention's scientific advisers not to endorse the technology until they are satisfied that T-Gurts do not harm human health or the environment.

Critics also include members of the Third World Academy of Sciences. Members of the academy's governing council are expected to debate a proposal tomorrow (25 June) to outlaw the patenting of seeds intended to be grown as food crops.

"Agriculture in much of the developing world is the result of collective experience

gained from the sweat and toil of poor peasants over thousands of years," says Muhammad Akhtar, vice-president of the academy and emeritus professor of biochemistry at Britain's University of Southampton.

Akhtar, who will be arguing in favour of the proposal, adds that "the gene pool in present foods is a common heritage of humankind and should belong to it all".

Supporters of T-Gurts include Richard Jefferson, director of the Center for the Application of Molecular Biology to International Agriculture in Canberra. Jefferson is the main author of a report on the environmental implications of Gurt technologies published by the biodiversity convention secretariat in time for this week's meeting.

Jefferson says he sees T-Gurts as a compromise technology that meets industry's desire to protect intellectual property and maximize returns on innovations in agricultural biotechnology, without jeopardizing the practice of subsistence farmers using seeds from a crop for planting in the future.

A key attraction of all Gurts is that they give companies better protection against unauthorized copying than patents. This desire for a tighter system of intellectual-property protection is a major concern for the technology's opponents.

Patents are conferred on inventions that demonstrate novelty, an inventive step or non-obviousness. But Terminator and T-Gurt technology, at least in principle, may be applied to any seed, regardless of its novelty.

In addition, Terminator technology can be licensed indefinitely, whereas patents have a finite life of usually not more than 20 years. Similarly, Gurts provide their owners with protection from unauthorized copying, but without the costs and effort of pursuing a patent infringement.

But it is the threat to seed saving — commonplace among poor farmers worldwide — that is sustaining the pressure on the



Seeds of discontent: a Mexican protester boards a ship importing genetically modified maize.

biodiversity convention's member states to outlaw Terminator technology.

Terminator is the subject of a United Nations resolution. And last October the Consultative Group on International Agricultural Research, a network of centres in the developing world organized through the World Bank, promised not to incorporate "into its breeding materials any genetic systems designed to prevent seed germination".

Much of the pressure is coming from RAFI, which has written to ministers and officials in departments of agriculture, environment and patent offices in 140 countries urging them to "assert national sovereignty over their seed supply and to ban the seed sterilization technology outright".

"Many governments are unaware that the World Trade Organization allows countries to reject individual patents on the grounds that they are contrary to public morality and/or a threat to health or the environment," says Pat Mooney, RAFI's executive director.

Arguably the best-known Terminator patent was granted last July to the US Department of Agriculture and the seed company Delta and Pine Land — itself the subject of a takeover bid from Monsanto.

Monsanto has so far resisted calls for a moratorium on commercializing its technology. Sources say it will not do so without similar assurances from its competitors, but so far only AstraZeneca has indicated that it does not intend to use the technology to deprive farmers from replanting seeds.

Monsanto executives also do not want to risk losing investor confidence by undermining an important technology of one of their potential acquisitions. **EhsanMasood**

... as academies meet to plan a global approach

[LONDON] Representatives of the science academies of the United States, Britain, Brazil, China, India and Mexico and the Third World Academy of Sciences are to meet in London next month to discuss a possible joint study on genetic modification (GM) in world agriculture.

The meeting will be held on 13 July at the Royal Society in London, which is organizing the gathering jointly with the US National

Academy of Sciences.

Several recent studies — including ones from the Nuffield Council on Bioethics (see *Nature* **399**, 396; 1999) and the Royal Society (see *Nature* **395**, 5; 1998) — have concluded that GM technology has a significant role to play in tackling world hunger. But this meeting will be the first time that academies from developing countries have been invited to contribute their ideas.

Each academy has been asked to send up to three experts. The meeting will discuss the possibility of a common position on issues such as the extent to which GM crops can contribute to food production, and the environmental risks of GM crops, along with specific issues such as 'Terminator' seeds (see main story) and regulatory matters, such as the United Nations biosafety protocol. **E.M.**