

January 9, 2007

'Who Benefits from GM crops? An analysis of the global performance of genetically modified (GM) crops 1996-2006' REPORT

HIGHLIGHTS OF THE REPORT:

1) In 2006 the spread of Genetically Modified (GM) crops worldwide showed signs of stalling. Production of GM crops on a large scale continued to be limited to a few crops and countries and have not addressed the main agricultural problems and challenges facing farmers in most countries of the world. They have not proven to be superior to conventional crops, and in addition, the 'second generation' GM farm crops with attractive "food traits" promised by the industry has not appeared.

2) In the **United States** despite the fact that the US Department of Agriculture (USDA) had approved 71 distinct biotech 'events' for commercial use, as of December 2006 only four crops – maize, cotton, soy and canola – with only two traits – herbicide tolerance and insect resistance – have been grown to any significant extent.

In 2006 an official report of the USDA confirmed that GM crop yields are not greater than those of conventional crops, stating that "currently available GM crops do not increase the yield potential of a hybrid variety. [...] In fact, yield may even decrease if the varieties used to carry the herbicide-tolerant or insect-resistant genes are not the highest yielding cultivars." A compelling number of studies by independent scientists demonstrate that GM crop yields are lower than, or at best equivalent to, yields from non-GM varieties. Reduced yields have in particular been found with the dominant GM 'RoundUp Resistant' soy

3) Small farmers and consumers have not benefited from GM crops. Data from across the world demonstrates that GM crops have often performed worse than conventional varieties in countries including India, Indonesia, Brazil and Paraguay. In recent years, small scale farmers in China have earned more planting conventional cotton than the Bt variety. No GM product commercialized today offers any benefits to the consumer in terms of quality or price. GM feed does not even offer an advantage to the feed industry.

4) In 2006 soy farmers in **Brazil** and **Paraguay** -3rd and 4th GM soy producers of the world- had a tough time sustaining their livelihoods due to a combination of low international soy prices, drought, rising costs for inputs and transportation, and a strong local currency. In Brazil the government had to adopt an emergency credit package of US\$8 billion in 2006 to help farmers cope with the crisis, costing Brazilian taxpayers an estimated US\$705 million. In Paraguay some municipalities were forced to declare a 'state of emergency' in 2006, and the Ministry of Environment has detected higher losses in Roundup Ready soy yields than in the conventional varieties, verifying that the GM varieties were highly sensitive to drought; some areas experienced production losses of between 60% and 90%.

Due to lower yields in the most recent harvest, Monsanto did not earn the expected revenues from royalties upon delivery at the grain elevator, and has had to scale down its expectations in Brazil in the short term. Monsanto Paraguay was also forced to publicly announce a reduction in the royalties they demanded from soy producers from February 2006 onwards.

5) GM cotton is not improving the livelihoods of farmers in the majority of countries where it has been commercialized so far, and has proved unable to tackle the fundamental challenges affecting cotton production in those countries:

- In 2005/06 **South Africa** planted cotton in 39% less hectares than the previous year due to low international prices and a strong Rand against the US dollar at the time of planting. In addition GM cotton planting decreased from 86% of all commercial cotton in 2004/05 to 77% in 2005/06.

- In **Australia** the cotton sector has undergone a rough period over the last four years, due particularly to drought and low prices. At the end of November 2006, with planting of the 2006/07 crop almost complete, production is forecasted to be the lowest in 15 to 20 years.

- In **Mexico** cotton production has been declining since 1996, the same year that GM cotton was approved in Mexico. In addition GM cotton production for 2006/07 is expected to decline to 50,000 metric from 70,000 metric tonnes in 2005/06.

- In **Argentina** cotton production dropped after mid 90s, coinciding with the adoption of GM cotton. These statistics clearly reflect that GM cotton does not drive Argentinian farmers' production.

- In **Colombia**, cotton production declined over 20% in 2006 from the area planted in 2005, mainly due to low international prices for cotton, the revaluation of the national currency, higher production costs, and restricted access to credit. Despite having planted Bt cotton, small-scale farmers continue having problems with pest attacks, which damage their crops and increase production costs.

- In **China**, a 2006 study by Cornell University showed that in 2004 the net revenue of hundreds of Bt farmers was significantly lower than that of non-Bt farmers. The reasons are reportedly linked to the emergence of secondary pests such as mirids, and the need for Bt cotton farmers to spray 15-20 times more pesticide than was previously needed to kill these pests.

- In **India** despite penetration of Bt cotton due to aggressive marketing by Monsanto and its local subsidiaries, the majority of small farmers are submerged in a circle of poverty and indebtedness. Small-scale cotton Indian farmers are facing hard times due to rising input prices combined with falling output prices, exacerbated by frequent crop failure due to unfavourable weather. In 2006 a legal case is pending at the Supreme Court between Monsanto and some Indian states for charging excessive royalties for Bt cotton..

6) A 2006 **European Union**-wide survey of public views reconfirmed the European public's opposition to GM food. The majority of Europeans think that GM food "should not be encouraged", and the survey concludes: "GM food is seen by them as not being useful, as morally unacceptable and as a risk for society".

7) GM crops commercialized today have on the whole increased rather than decreased pesticide use, and do not yield more than conventional varieties. The environment has not benefited, and GM crops will become increasingly unsustainable over the medium to long term. Data from the United States, Australia and Brazil indicates that GM crops do not yield more than comparable conventional varieties. Comprehensive and independent analysis from the US, and indications from countries such as South Africa and Brazil, indicate that GM crops do not reduce pesticide use, and may even lead to increased chemical use for some GM varieties.

8) The 2006 contamination of the world food supply with illegal GM rice in the Americas, Europe, Africa and Asia, stemming from experimental trials in the US that were supposedly concluded in 2001, shows the inability or unwillingness of the industry to control its products. It also shows once again that once you get the genie out of the bottle there is no way to get it back in.

9) To date, GM crops have done nothing to alleviate hunger or poverty. The great majority of GM crops cultivated today are used as high-priced animal feed to supply rich nations with meat. More than four out of every five hectares of GM crops are engineered to withstand the application of proprietary herbicides sold by the same company that markets the GM seed, and have little if any relevance to farmers in developing countries who often cannot afford to buy these chemicals.

10) There still is a lack of comprehensive studies on the performance of GM crops in every country that has commercialized them, and this consequently calls into question their claimed benefits. No country in the world has produced a comprehensive study of the real impact of GM crops at the farm level. There is no adequate analysis of pesticide use, yields, weed/pest resistance, or effects upon smaller growers over the short, medium or long term that includes a comparison with existing conventional varieties and other agricultural methods such as agroecology or organic food production.

11) Incredibly, industry-funded organizations like ISAAA have been accepted as the official source for evaluations of the performance of GM crops, even though they often employ dubious data and flawed methodologies. Furthermore, ISAAA and other industry-funded organizations virtually never confront or even acknowledge problems with GM technology, thus making their conclusions biased.