

Is Monsanto on the side of science?

Monsanto positions itself as a champion of science and GM supporters tar critics as 'anti-science'.* But is this accurate? CLAIRE ROBINSON looks at how scientists who investigate the safety of GM foods are treated.

When Australian scientist Judy Carman decided to carry out an animal feeding study with GM crops, she asked three GMO companies to supply seeds. One company didn't reply; another wanted the details of her study first. Monsanto sent her a legal document to sign stating that she would give the company the results of the study before publication. Carman said: 'We would have been legally bound to do that whether they gave us seeds or not. No sensible scientist would agree to such conditions, and we didn't.'

Scientists who want to find out if a GM crop is safe to eat or harms the environment need access to seeds of the GM variety as well as the non-GM parent (isogenic) variety it was developed from, grown in the same conditions. This way, any differences found in an experiment studying the effects of the GM crop and the non-GM control are known to be due to the genetic modification and not to some other factor, such as different growing conditions.

But Monsanto and other GMO companies restrict access to their seeds for independent researchers.^{1,2} Anyone who buys Monsanto's patented GM seed has to sign a technology agreement saying they will not use the seeds or crop for research or pass them to anyone else for that purpose.³ Even if permission to carry out research is given, companies typically retain the right to block publication if the results are 'not flattering', according to *Scientific American*.⁴

In the end, Carman used non-isogenic crops for the control pigs' diet, noting that GMO companies had claimed, and many government authorities had agreed, that the GM crops used were 'substantially equivalent' to non-GM crops. She found toxic effects in the



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GM-fed pigs – so the GM crops could not be substantially equivalent.⁵

The French scientist Gilles-Eric Seralini also had difficulty accessing seed for his rat-feeding study with Monsanto's GM maize NK603.⁶ No farmer wanted to risk breaching their technology agreement with Monsanto. Eventually a farm school agreed to grow the crops on condition it was not named, out of 'fear of reprisal' from Monsanto.⁷

Food writer Nathanael Johnson has claimed that since 2009 the problem of access to seeds has been 'largely fixed', due to research agreements being reached between GMO companies and certain universities.⁸ But to Carman's knowledge, these are 'commercial-in-confidence' research agreements to make new GMOs, not to test for safety. In any case, we are not permitted to see them to check what conditions are imposed on the researchers.

Scientists under attack

What's wrong with telling Monsanto about your research in advance? Scientists whose research has questioned the safety of GM crops claim to have suffered attacks on themselves and their studies. They say they fear that giving Monsanto notice of planned research will help attacks to be prepared in advance.

In some cases, pro-GMO scientists have tried to bully journal editors into not

*Oxford Farming Conference, nin.tl/marklynas; Gurian-Sherman D, nin.tl/science-dogma; Parry G, nin.tl/rise-anti-science

publishing the study, or retracting it after it has been published. In the 1990s the editor of *The Lancet* said he was threatened by a senior member of Britain's Royal Society that his job would be at risk if he published the research of Arpad Pusztai, a scientist at the Rowett Institute in Scotland. Pusztai's research had found toxic effects in rats fed GM potatoes.⁹ The editor published the paper anyway, but Pusztai was subjected to a campaign of vilification by pro-GMO scientific organizations and individuals in an attempt to discredit him and his research.¹⁰ He lost his job, funding and research team, and had a gagging order slapped on him which forbade him to speak about his research.^{11,12,13,14,15,16}

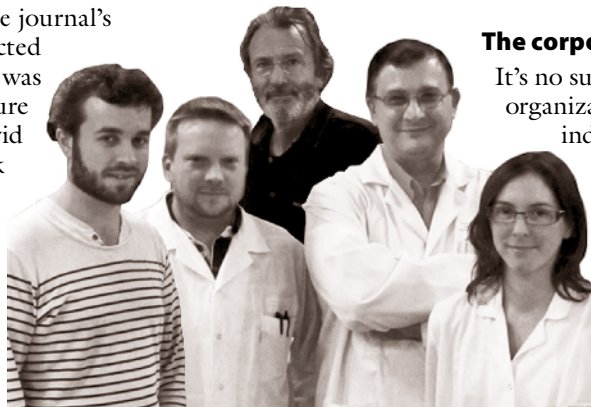
According to a former Rowett administrator, the campaign to silence Pusztai was set in motion by a phone call from Monsanto to US President Bill Clinton, who called British Prime Minister Tony Blair, who in turn called the Rowett Institute. A Rowett director said: 'Tony Blair's office had been pressured by the Americans, who thought our study would harm the biotechnology industry, and particularly Monsanto.'¹⁷ A similar smear campaign against a 2001 study that found GMO contamination in native Mexican maize was traced to Bivings Woodell, a PR company working for Monsanto.^{11,18}

The climate for independent researchers looking at GMO risks has not improved, though Monsanto and other GMO companies are less visible in attack campaigns – and may not need to be involved at all. They have plenty of foot-soldiers at universities and institutes to fight their battles without any apparent involvement on the part of the company, as the following examples of treatment of researchers show.

Gilles-Eric Seralini: In 2012 the French researcher published in *Food and Chemical Toxicology* a long-term two-year study which found liver and kidney damage in rats fed Monsanto GM maize and tiny amounts of the Roundup herbicide it is engineered to be grown with. As soon as the study was published, university-based scientists joined a vicious smear campaign against it.¹⁹ After a year of pressure and the appointment of a former Monsanto scientist to the journal's editorial board, the editor retracted the study.²⁰ The reason he gave was the supposed 'inconclusive' nature of some of the results.²¹ But David Schubert, a professor at the Salk Institute for Biological Studies in California, commented: 'As a scientist, I can assure you that if this were a valid reason for retracting a publication, a large fraction of the scientific literature would not exist.'²² Seralini's study was later

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Gilles-Eric Seralini (second from right) and his team. They found liver and kidney damage to rats fed Monsanto's GM maize.



republished by another journal.⁶

Many of Seralini's attackers had conflicts of interest with the GMO industry – but these were not made clear to the public.¹⁹ The European Food Safety Authority (EFSA) also criticized the study, but it is not independent: over half of EFSA experts have been found to have conflicts of interest with the industries they regulate.^{23, 24}

Judy Carman: After Carman received government funding for a GMO feeding study, she suffered six personal attacks by pro-GMO scientists over a 10-year period. They attacked her through her university, alleging she was lying, bringing the university into disrepute, or defaming them. Carman said: 'It was clear to me that they wanted me sacked.'

Following the attacks, Carman says she was forced out of two successive university posts. She is fortunate not to need income from a university position, but points out that isn't true of most scientists: 'Any scientist in my shoes relying on a university income to eat or pay a mortgage would feel forced to stop investigating GMOs.'

Manuela Malatesta: The Italian researcher found that Monsanto's GM soy disturbed the functioning of the liver, pancreas and testes of mice.^{25,26,27,28} After she published her papers, she says she was forced out of her job at the university where she had worked for 10 years, and could not obtain funding to follow up her research. She commented: 'Research on GMOs is now taboo. You can't find money for it... People don't want to find answers to troubling questions. It's the result of widespread fear of Monsanto and GMOs in general.'¹⁷

Commenting on these cases, Michael Antoniou, a London-based molecular geneticist, says the normal scientific response to worrying findings is to design more experiments to get to the bottom of whether there really is a health concern or environmental impact. Yet in the area of GM crops and foods, this does not happen. Instead, Antoniou says, 'the GMO lobby attempts to discredit the study and the scientists who conducted it. It's despicable and unprecedented in the history of science.'

The corporate university

It's no surprise that many public scientists and organizations ally themselves with the GMO industry, as they rely heavily on industry funding. GMO companies have representatives on university boards and fund research, buildings and departments.²⁹ Monsanto has donated at least a million dollars to the University of Florida Foundation.^{30,31} Many US universities that do crop research are beholden to Monsanto.³² Some

academic scientists own GMO patents and are involved in spin-off companies that develop GM crops.³³

In Britain, the public institute Rothamsted Research counts Monsanto as a collaborator.³⁴ Monsanto reportedly sponsored the Rowett Institute prior to Pusztai's going public with his GM potato findings.^{17,35} Universities have become businesses and scientists have become entrepreneurs and salespeople.

Sponsorship of public institutions enables companies to steer research resources into areas that profit them. The companies develop patented GM crops in partnership with the institution and the institution generates research that, with its stamp of academic objectivity, can convince regulators of the safety or efficacy of GM crops. An added bonus for companies is a supply of scientists who are prepared to act as GMO advocates. They are often described only by their public affiliations, even though they and their institutions depend on GMO industry money.^{36,37}

Is Monsanto on the side of science? The answer appears to be: 'Only if it can control and profit from it.' That runs counter to the spirit of scientific inquiry, which must be free to go wherever the data leads – however inconvenient it may prove to a company's bottom line. ■

Claire Robinson is the co-author with two genetic engineers of *GMO Myths and Truths*, available for free download at earthopensource.org. She is an editor at GMWatch, a public news and information service on genetically modified crops and foods.

1 *Nature*, nin.tl/battlefield-scientist **2** *Nature Biotechnology*, nin.tl/Emily-Waltz **3** Monsanto nin.tl/Monsanto-agreement **4** *Scientific American*, nin.tl/seed-companies-control **5** Carman JA, Vlieger HR, Ver Steeg LJ, et al, nin.tl/pigs-study **6** Seralini G-E, Clair E, Mesnage R, et al, nin.tl/toxicity-Roundup **7** Seralini GE. *Tous Cobayes!* Paris, France: Flammarion; 2012. **8** Grist, nin.tl/kneejerker-GMO-debate **9** *Guardian*, nin.tl/editor-threatened **10** *Lancet*, Ewen SW, Pusztai A, nin.tl/effects-on-rats **11** Rowell A, *Don't Worry, It's Safe to Eat*, Earthscan, 2003. **12** Pusztai A, nin.tl/Pusztai-homepage **13** GM-Free, nin.tl/not-silent **14** *Powerbase*, nin.tl/Pusztai **15** *Daily Mail*, nin.tl/Blair-and-Bush **16** Verhaag B, nin.tl/scientists-attacked **17** Robin M-M, *The World According to Monsanto: Pollution, Corruption, and the Control of the World's Food Supply*, The New Press, 2013. **18** Monbiot G, nin.tl/fake-persuaders **19** Spinwatch, nin.tl/smelling-rat **20** Robinson C, Latham J, nin.tl/goodman-affair-monsanto **21** Hayes AW, nin.tl/hayes-letter **22** Schubert D, nin.tl/science-food-health **23** European Food Safety Authority, nin.tl/efsa-response **24** Corporate Europe Observatory, nin.tl/unhappy-meal **25** Vecchio L, Cisterna B, Malatesta M, Martin TE, Biggiogera M, nin.tl/gm-mice **26** Malatesta M, Caporaloni C, Gavaudan S, et al, nin.tl/gm-soy-mice **27** Malatesta M, Caporaloni C, Rossi L, et al nin.tl/gm-mice-2002 **28** Malatesta M, Biggiogera M, Manuali E, Rocchi MBL, Baldelli B, Gazzanelli G, nin.tl/gm-mice-2003 **29** Food & Water Watch, nin.tl/private-gain **30** University of Florida Foundation, uni-gm-links **31** University of Florida Foundation, nin.tl/uni-gm **32** Iowa State University Foundation, nin.tl/monsanto-link **33** GeneWatch UK, nin.tl/monsanto-commercial **34** Rothamsted Research, nin.tl/monsanto-collaborators **35** Physicians and Scientists for Responsible Application of Science and Technology, nin.tl/scientist-sacked **36** *The Ecologist*, nin.tl/wheat-trial **37** Poulter S, Spencer B, nin.tl/disturbing-truth