

“Who would have guessed that the working record of a mathematical project would read like a thriller?” Timothy Gowers and Michael Nielsen, page 879

Battlefield: hitting the supporters of biotechnology

SIR — You misidentify the victims in your News Feature on conflicts among scientists over genetically modified (GM) crops (*Nature* **461**, 27–32; 2009). The real victims on this “battlefield” are not the handful of people criticized for their research, but those scientists who want to realize the potential of plant biotechnology and the farmers who apply authorized products.

These people have to endure bomb threats, insulting letters and telephone calls, destruction of their fields (almost no UK field experiment has survived since 2000) and harassment of their children at school. As author of a UK Food Standards Agency report concluding that organic food provides no additional nutritional or health benefit, Alan Dangour was bombarded with hate mail from activists.

The whole biotech debate is an emotionalized mess, fuelled by lobbyists and society’s zero-risk mentality. Scientists should not be wary of publishing their results just because they could be deliberately misinterpreted. But they must be vigilant. As Kai Diekmann, chief editor of *Bild*, the largest newspaper in Germany, said in a recent television broadcast, “More than 10 million readers is a huge responsibility. I have to consider every single word before it is printed.”

Why are some scientists so sensitive if weak data are published? When I first met Ingo Potrykus, the inventor of the famous transgenic ‘golden rice’ (so called because of its extra β -carotene content), I was still Germany’s top anti-GM campaigner with Friends of the Earth. Some 15 years after our public debate, I now understand his frustration. As a humanitarian and Roman Catholic, he has worked hard to develop rice varieties he believes could improve the lives of millions of poor



children likely to become blind. But Greenpeace and other activists are sabotaging his efforts with false claims, initially that children could be poisoned by excess vitamin A (see go.nature.com/DFzvpc) and later that 4 kilograms of rice is the daily requirement for a therapeutic effect (see go.nature.com/GvklD9).

Scientists should think more carefully about the impact their words might have on the future of society, and their responsibility towards it.

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Battlefield: useful debate needs caution and civility

SIR — The rage that is sometimes unleashed by proponents of genetically modified (GM) crops when they encounter evidence for potential risks is well described in your News Feature (*Nature* **461**, 27–32; 2009). Several pointers could help remedy the problem of abuse in this “battlefield”.

Reviewers and editors of scientific journals should insist that critiques of GM studies are well-reasoned and constructive, and free of emotionally charged language that might inflame the issues. They should resist the temptation to publish potentially

exciting but very preliminary studies that might attract unwarranted media attention (this also applies to findings on the potential benefits of transgenic crops).

Authors of controversial papers must be prepared for their conclusions to be misinterpreted and quoted out of context, even by reputable science writers, as the news flashes around the globe. Oversimplification by the media is prevalent, but careful wording of the paper’s findings will encourage more accurate reporting.

Without caution and civility by all participating scientists, effective debate on the benefits and risks of GM crops will continue to be hampered.

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Commercial pressure quelling creation of new microscopes

SIR — Your collection of articles on microscopy (*Nature* **459**, 629–639; 2009) rightly celebrates the success of innovators in the field. Unfortunately, the supply of new technologies is being threatened by commercial concerns.

Microscope manufacturers

are obliged by world competition to specialize in a few high-end products only. Even though these products are hugely expensive, their total sales volume is now so small that the profits do not support the research and development of new microscopes. High prices call for purchase by a group, so the specification list expands and the cost spirals up.

Companies are wary of producing a low-cost microscope, such as SPIM (selective plane illumination, ideal for low-bleach imaging of embryos) for fear of losing their high-end sales. Several other new technologies, including CARS (coherent anti-Stokes Raman scattering microscopy, which provides chemical information similar to that given by infrared spectroscopy) and PALM (photoactivated localization microscopy, which brings the resolution down to a few nanometres), are not yet available commercially. Another method of super-resolution is being produced (STED, or stimulated emission depletion microscopy), but is not working as well as it does in the hands of the inventor.

Sadly, there are now several examples of inventions that might have been beneficial to science and medicine being suppressed by companies for marketing reasons — including one of my own design, an attractive and inexpensive confocal system.

Given that the normal route of exploitation is grinding to a halt, perhaps inventors could be funded directly to clone their inventions. There should be a pre-commercial phase of development by the public sector. It would also help to set up, where it does not exist already, an institute with the capability (optics, software, electronics experts and biologists) to develop these elaborate new microscopes. It is too much for any individual university or biomedical lab.

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