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Distrust in genetically altered foods

Attempts in Europe to resist imports of genetically modified maize from the United States risk a damaging trade battle. But opposition springs from science and public distrust, both of which need a considered response from industry and politicians alike.

PUBLIC attitudes to the safety of genetically engineered products in general, and foods in particular, are not 'rational' in the strictly scientific sense. Indeed, it would be surprising if they were. The rapid growth of interest in organic foods is only one consequence of the high environmental — and perhaps health — price that has been paid for past enthusiasm for chemical herbicides, insecticides and fertilizers. Yet while many consumers are voicing increasing demands for 'natural' products, farmers are seeking to cut costs and increase yields by moving in precisely the opposite direction through the use of crops that have been genetically tailored for greater efficiency of production.

Conflict has been inevitable. It should therefore come as little surprise that the critics of genetic engineering have seized a new opportunity — the first exports of genetically-engineered agricultural products from the United States to Europe at the end of the current growing season — to highlight their concerns (see page 564). Ironically their protests, timed to coincide with this week's World Food Day, partly reflect the success of the US agricultural industry in persuading regulators that their products are safe to grow. But they have also spotlighted both residual concerns about potential hazards, and the cultural challenge of handling low-level risk on both sides of the Atlantic.

Neither issue is straightforward, although the first is easier to address than the second. Critics of the new crops have raised a wide variety of concerns. Most are already being carefully watched for, such as the legitimate fear that genes for herbicide resistance might pass from a crop such as oil seed rape to its 'weedy' relatives (see *Nature* **380**, 31; 1996). Others, such as the claim that stimulating the resistance of crops to chemical herbicides encourages the excessive use of such herbicides, concern broader questions of environmental policy that cannot be tackled through the regulation of genetically-engineered crops alone.

Separate from these is a more specific concern that has surfaced in a particularly acute form over one particular crop. The crop in question is a variety of herbicide-resistant corn (or maize) that has been developed by the Swiss company Ciba-Geigy to express an additional trait, namely toxicity to a major pest, the European corn-borer. The concern, highlighted earlier this year by Britain's Advisory Committee on Novel Foods and Processes (ACNFP), is that a gene resistant to the antibiotic ampicillin, used as a marker in an early stage of the development process, could — at least theoretically — be passed to man via bacteria lodged in the gut of animals which eat the maize unprocessed.

Ciba-Geigy's response to this concern, which has contributed directly to a regulatory impasse in Brussels, is that it is exaggerated. Strictly speaking, the company may be right; certainly the series of events that would need to occur — including the transfer of the offending stretches of DNA to gut bacteria — have a low probability. But the risk, nevertheless, is there, and is a matter of genuine scientific debate. There is certainly wisdom in those members of the ACNPF who argue against attempts to shrug off any potential increase in antibiotic resistance in the population, even if small. European science advisers now addressing this ssue should ensure that it receives full consideration in their recommendations.

Handling risks of this type has now become the most difficult task of regulators on both sides of the Atlantic. Enhancing scientific understanding is essential, but is not the whole solution. Just as challenging, but just as necessary, is the creation of trust. It is that which European consumers currently appear to lack, combining deep-rooted cultural fears of genetic manipulation with past experience of the aggressiveness of some agri-business companies (a tradition which Ciba-Geigy is perpetuating, by all accounts). If both technical and political monitoring procedures can be put in place that are sufficient to generate and maintain this trust, there is no reason why genetically-engineered foodstuffs should not enjoy success in the market. But without such procedures — or even recognition for their need — seed companies and their allies risk growing opposition. □

Spreading assessment skill

The systematic judgement of research performance is a growing industry in search of international quality assurance.

TIGHTENING budgets are putting research institutions under increasing pressure to justify decisions such as who is promoted, which grant application is approved, and which departments should be favoured or stripped of funding. Such institutions also acknowledge a need to evaluate completed research projects.

The value of quantitative measures, such as publication-based indicators and research grant statistics, in both processes is self evident. As was clear at an international meeting last week (see page 567), the way in which they are used can be highly contentious. But the heat of the debates at the conference would have been reduced if delegates, mostly research scientists, had been able to consider the practical experience of different countries.

An analysis of that experience, and of related work conducted by science policy researchers, is urgently needed. There are plenty of potential users. In Europe, research agencies in Italy, Spain and the new democracies are prominent among those trying to work out how best to allocate funds. Their scientists are often to be found engaged in heated discussions about assessment in which the wheel is repeatedly reinvented.

Enter, possibly, the European Science Foundation (ESF). Funded by national research agencies, the foundation is well placed to pull together information and analysis, and to promote a system of 'best practice' in research assessment throughout the continent. Two years ago, after much soul-searching, the ESF decided that science policy should become its core mission. Since then, it has identified research assessment as an important area on which its advice could be of value.

So far, however, even though it possesses the necessary infrastructure and contacts, only good intentions have emerged from the ESF's office in Strasbourg. The time has come for the organization to show more vigour by sinking its teeth into the research assessment problem. In doing so, it would provide a much-needed service not only for Europe, but for the many other countries in which objective research assessment is increasingly considered as an essential goal. □