nature

22 April 1999 Volume 398 Issue no 6729

GM foods debate needs a recipe for restoring trust

The soundest possible science must underlie any effort to regulate genetically modified foods. But regulations must also acknowledge uncertainty — and incorporate trust in the judgement of the consumer.

Should the rules for labelling genetically modified (GM) food be determined solely by technical considerations, based on scientific 'facts'? Or should broader public concern be taken into account? The issue will be high on the agenda of the Codex Alimentarius Commission, the archaically named body that sets international food standards, when it meets next week to discuss labelling principles. It is not just theoretical. If the current disagreement between the United States and Europe on this issue were eventually to provoke a formal dispute over trade practices to the World Trade Organization (see page 641), then, under new WTO rules, the Codex's ruling would be critical in determining the outcome.

The dispute itself can be reduced to relatively simple terms. Members of the European Union, conscious of public pressure over GM foods, argue that any food containing detectable GM ingredients should be labelled. In contrast, the United States, apparently concerned at the extra costs of disaggregating basic food components according to whether they have been produced with such techniques, and worried that a GM label could trigger what it considers unnecessary worries about safety, says that labelling should only be required if a product is substantially different from food already available.

Exaggerations

Two points about the scientific aspects of this dispute must be made immediately. The first is that much of the recent outcry about the potential dangers of such foods, particularly in Britain, has been based on exaggerated claims, often invoked deliberately by mass-market (and occasionally more responsible) newspapers as little more than a device to increase sales. There is as yet no substantial evidence that GM foods are inherently more dangerous than conventional foods just because they have been produced using novel techniques.

The second point, however, as a series of articles in this week's issue demonstrates, is that a number of uncertainties about the full effects of such foods remain on the table (see Briefing, pages 651– 656). In the case of human health, these include potential allergenic reactions to genetic changes that are not completely understood. As for the environmental impacts, many scientists feel that widely quoted 'hazards', such as the potential spread of herbicide-resistant 'superweeds', have been overemphasized by critics. But there is a broader consensus that the potential ecological disturbance caused by a growing dependence on GM crops by modern farmers could be significant.

Some argue that neither set of concerns is weighty enough to warrant the imposition of separate regulatory structures for GM foods on top of those that already exist for conventional foodstuffs. Technically, perhaps, the argument is correct. And the food industry would certainly like that view to prevail. But it fails to take into account an additional factor that must be incorporated into any regulatory system if it is to achieve its goal — the need for public acceptance.

The public is right to be concerned about the potential — and novel — hazards of modern food-production techniques. In Europe, at least, the recent epidemic of bovine spongiform encephalopathy (BSE) among cattle, apparently the end-result of more cost-effective feeding processes introduced in the early 1980s, is a dramatic illustration of unanticipated dangers. And in both Europe and the United States, the steady reduction of biodiversity remains a silent witness to the potential of modern agriculture to inflict damage on the environment and the wildlife it supports.

Benefits

There is, of course, an upside as well. Certain consumer demands will become easier, and possibly cheaper, to meet with the new GM crops (as they are already in the case of soy protein). Agriculture will undoubtedly become more efficient as genetic modification gives farmers greater control over the range of crops that can be grown cost-effectively; in some cases, this could well allow farming communities to survive that might otherwise disappear. And it can certainly be argued that, at least in the short term, herbicide-resistant crops may lead to a reduction in the amount of herbicide used.

But neither the upside (as the industry would like) nor the downside (as environmentalists argue) should dominate the debate. A rational strategy requires an approach that respects and embraces both sets of arguments. There is no simple, institutional formula for achieving this. But some principles can be suggested.

First, both sides should accept the need to ensure that the regulation of GM foods — including the conditions under which they are marketed — is based on the soundest possible science. Basing regulations on scientific conclusions that later turn out to be false is in no one's interests; hence the need for continued research, whether this involves monitoring for long-term health effects, or field trials to study the impact of GM crops on local biodiversity. Disrupting such trials only serves the interests of those who seek gratuitous publicity.

Second, both sides should acknowledge the current limits to scientific certainty. The failure to 'prove' scientifically that a new food is dangerous is not the same as to have 'proved' that it is safe — a lesson learnt from the BSE affair. The best that research can do is to narrow the limits on uncertainties, not eradicate them.

The third need is to find ways of facilitating public access to credible scientific information — and of communicating in a responsible form both its significance and its limitations. Too much such information is tainted by its deliberate use by both sides in what can be little more than a propaganda war. As some delegates at the recent Biovision conference in Lyons pointed out, the need for 'honest brokers' is of paramount importance (see *Nature* **398,** 360; 1999).

Finally, broad public concerns, however 'irrational' they may appear to some, must be taken into account in food safety regulations if they are to maintain their credibility. Industry complains that the public has lost trust in its scientific experts, but it will only make matters worse by declaring its own loss of trust in the judgement of the consumer. If labelling all foods produced by GM techniques, as many argue, turns out to be a necessary step in regaining trust on both sides, it could be a small price to pay. □