K Sheet
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BRITISH MEDICAL ASSOCIATION STATEMENT ON GM FOODS

The British Medical Association (BMA) recently updated their 1999 report on the health implications of GM food crops based on their June 2003 review of new evidence. Through this report, the BMA aims to support the balanced debate on GM food crops, and expressed their concern for the effects of GM food crops on public health and the environment.

The need for further research

Despite the great deal of research conducted on the genetic modification of food, many unanswered questions remain, particularly with regards to the potential long-term impact of GM foods on human health and the environment. Few studies on the effects of GM food on human health have been short-term and specific. There is still a lack of evidence-based research with regards to the medium and long-term effects on health and the environment – which is presently the focus of public debates. Thus, it is crucial for research sponsors and the government that the public's concerns are taken into account from the earliest stage of the research process.

The BMA believes that the potential for GM foods to cause harmful health effects is very small, and many of the concerns expressed pertaining to risk also apply to conventionally derived foods. However, safety concerns must still be addressed. The following are areas identified by the BMA where more research is needed:

• ***Allergens***: While the BMA is not aware of any evidence that existing GM foods cause allergenic reactions, it remains possible that any new food products could elicit new allergies. Unfortunately, research to test allergenicity is quite difficult to pursue due to the lack of baseline data on food composition and consumption, and the lack of a reliable, well-validated animal model. However, further research is required to develop reliable *in vitro* methods for sensitization events based on human tissue samples or cell cultures. Research should also be undertaken to understand how nutritional status, the plant food matrix and subsequent digestive processing may alter allergenic potential. Greater knowledge in this area will enable improved risk assessments for all novel foods in general, not just GM foods.

• ***Nutritional status*****:** GM foods could conceivably have different effects on those of poor nutritional status and/or those belonging to 'vulnerable groups' (e.g. infants, pregnant and lactating mothers, those with chronic diseases) , when compared with healthy individuals. It is important to ensure that any food product, intended to be consumed in large amounts by

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infants or other 'vulnerable groups', are subjected to rigorous processes of approval specified by the designated regulatory and advisory bodies.

• ***Genetic transfer*:** While gene transfer has been observed in the gastrointestinal tract of some mammals and birds, there is still great uncertainty as to the extent and the consequences of this transfer. Many consider that transfer occurs at such a low frequency that any addition to the natural pool of antibiotic resistant organisms, for example, is marginal. We consume large amounts of non-human non-GM DNA as part of our daily diet with no identifiable problems. However, research is needed to assess whether transfer of DNA from GM food is more likely to occur as it contains additional material used to assist insertion of the GM DNA in the first place.

• ***Environmental impact*:** The use of herbicides with GM crops and their effect on the environment is still a major concern. Long-term case-by-case research into the effects of GM crops on the environment and biological diversity is still required to properly address the different issues. It must be stressed that the effects seen in the recent UK Farm Scale Evaluations were a consequence of the herbicide regimes applied and not a direct consequence of the way in which the GM crops had been engineered.

• ***Experimental design*:** BMA believes that more research is required on how best to carry out experiments, risk assessments, and surveillance studies with respect to GM crops and food. Research into the possible health effects of GM foods in the UK has been limited to date by the lack of firm hypotheses regarding such effects, difficulties of defining individual consumption, and the generally low levels of consumption of GM foods.11 Acquisition of baseline data on the composition, purchase and consumption of food will be imperative for nutritional and health surveillance.

Labeling of GM food is also encouraged to facilitate further health research and allow the public to choose whether they consume GM food or not. Robust population health surveillance in relation to consumption of all foods, including GM foods, is essential.

Risks and benefits

Any new technology such as genetic modification must be examined for possible benefits and risks to human health, the environment, and biological diversity. As with all novel foods, safety assessments in relation to GM foods must be made on a case-by-case basis. The BMA supports the improvement of conventional and organic farming, and appreciates the concern about cross contamination with GM crops.

While BMA acknowledges the potential benefits of GM crops, the evidence for real benefit is not yet sufficiently persuasive to grow GM crops at the expense of conventionally derived alternatives that can be grown at least as effectively.

The BMA understands the concerns being expressed about the negative consequences of allowing the private sector to dictate the price of genetically modified crops and/or pesticides and about the gradual privatisation of scientific research and its potential consequences for the independent regulatory assessment of GM technologies. While discussion of such concerns and related farming issues are beyond the scope of their statement, the BMA sees the need for further debate about the social and health risks potentially associated with GM foods. If public mistrust is to be alleviated, it is imperative that bodies, which regulate new agricultural and food technologies, should retain full transparency in their deliberations and remain fully accountable to the public they are intended to serve.

There is no need to stop the sale of currently available GM food. However, the BMA observes that the public debates have not provided sufficient arguments either as to why GM crops should be allowed for commercialization. GM crops need to be assessed on a case-by-case basis, and the benefits that can be derived from them must be clearly discussed. It is also important that the communication of risk to the public is improved; and that the information provided be unbiased, based on sound science, and made accessible to parties interested.

Conclusions regarding GM foods and health

BMA believes that there is no substantial evidence to prove that GM foods are unsafe however, the organization calls for further research and surveillance to provide convincing evidence of safety and benefit. Epidemiological health surveillance will remain impractical in the UK while so few of the population are exposed to GM foods.. The BMA still considers that with adequate risk assessment procedures, independent and rigorous testing of novel foods, adequate post marketing surveillance and proper regulation, GM food has potential benefits for both the developed and developing world in the long-term. Continuing sound scientific research will also provide the only means of eliminating the uncertainty that still surrounds the environmental and health impact of GM crops.

For the full statement, please visit http://www.bma.org.uk/ap.nsf/Content/GMFoods