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GM food: Head to head

Transgenic food is big business

Controversy over genetically-modified (GM) food is reaching ever-greater heights.

We brought the two opposing sides of the GM argument together in a head-to-head confrontation.

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Do we need genetically-modified food?

Some supermarkets back GM foods

Greenpeace: No - and in addition to not needing it, poll after poll shows that the public does not want it.

There are two arguments put forward saying we do need it - one is that we need GM food to feed the people of the world - the other is that it is the way forward for British and European agriculture.

The fact is that there is sufficient food in the world to feed everyone. It is poverty and inequality which leads to people not getting enough.

The production of GM food is motivated by profit. As far as agriculture in the UK and Europe goes, all the supposed benefits of GM foods are completely speculative, yet we know that it is scientifically, quantifiably proven that organic agriculture is healthier.

What are the effects on human health of eating it?

Some crops can be manufactured to produce their own insecticides

Greenpeace: There is an enormous depth of scientific ignorance and uncertainty about what the immediate or long-term effects of placing GM foods into the food chain.

Time after time, the expert community has been proved to be wrong, and the public is fairly sceptical of its opinion.

Specific health concerns associated with GM foods have included the development of soya using a gene from Brazil nuts. The soya produced the allergic nut reaction. This was removed because developers knew to look for the allergy. But what about factors that are not even known, and not looked for?

Another aspect is antibiotic resistance. Some maizes were developed to contain antibacterial properties. If those were to be transferred to bacteria, they could become resistant to antibacterial drugs.

Should GM crops be subject to clinical trials?

Specific genes can be taken from one species and transferred to another

Greenpeace: At the moment, we seem only to be concerned with acute exposure to toxins - and we test pharmaceutical products.

But we only ingest a small amount of drugs in a lifetime - as opposed to tonnes of food.

Some GM crops are designed to resist specific powerful pesticides. Will the use of these pesticides harm the environment?

Crops can be designed to resist herbicides

Greenpeace: Broad-spectrum herbicides kill every sort of weed that may grow in a field.

You would not usually be able to use these pesticides while your crops are growing, because it would kill them.

However, the patent on the herbicide Round Up is running out and manufacturers have developed a plant that is resistant to it.

The monetary gains for them are obvious. But in terms of wildlife, all other plants will be banished from the fields at all times of the year, and the animals which eat those plants and rely on them, will no longer be able to do so.

Fields will become even more of a desert than they already are. Another aspect is that crops which are engineered to be poisonous to some insects are being developed - but there have been reports from Canada which say that they are also killing lacewings - which themselves are predators.

Will pollen from GM crops land on non-GM plants and create "superweeds"?

Greenpeace says cross-pollination has already happened

Greenpeace: We have already seen reports, again from Canada, that cross-pollination with remnants of non-GM crops has occurred.

There is also the problem that resistance to herbicides could transfer to weeds.

Is it wise to directly manipulate genes - for example putting animal or bacterial genes into plants - rather than letting nature take its course?

Strawberries can be made to resist frost damage - with the insertion of a gene from a cold-water fish

Greenpeace: In terms of releasing GMOs into the food chain and the environment, the potential for unpredicted and adverse effects is enormous.

It is already known that when exotic species are released into an environment, the consequences can be disastrous. Rabbits in Australia was a disaster, as were certain types of fish introduced to Lake Victoria.

People thought there would not be a problem, but there was. That problem is exacerbated very much if we are dealing with a very unpredictable technology in the first place.

In some cases, you are not even dealing with gene transference from the same kingdom, let alone from the same species.

If you are dealing with any other sort of pollution, there is some mechanism for product recall. With chemical pollution, the substance will have some form of half-life, but here we are dealing with self-replicating, biological pollutants.

Is not the whole exercise just a money-making ploy, designed to make farmers reliant on particular providers of seed and pesticides?

Greenpeace: There is a scientific fascination in the analysis of this technology - it offers fascinating experimental potential. But, this is being promoted by organisations that exist to generate money - not to feed the earth.

Their development of things like terminator technology, where seeds produce plants which do not themselves produce seeds, is purely in the interests of financial gain.

They are trying to get a monopoly on food. I do not think that this is a healthy trajectory for agriculture in the UK, let alone the rest of the world.