Monarch butterlies may be threatened by pollen from genetically modified maize. That's the conclusion of a new Monarch Butterfly survival study by Cornell University published in Nature **(Archive 21 May 1999).**

The Monarch Butterfly is the "Bambi of insects" (Washington Post), the official Texas State insect, focus of thousands of school projects and web-sites every year.

Researchers dusted GM maize pollen onto the leaves of milkweed, which is commonly found on the edges of corn fields, and is the main source of food for monarch butterflies. Half the monarch butterflies died and the rest grew to only 50% normal size.

Another Swiss study suggested that lacewing insects can also be killed by BT maize, but others found no difference. BT potatoes with genes added to produce GNA lectin (a natural poison found in snowdrops) have also been found to kill ladybirds.

The problem with crops such as corn, wheat and barley is that pollen is blown by the wind, often across very large areas. There have already been concerns that genes in modified maize could travel and contaminate non-GM farms growing organic food. Between 10-20 million acres of genetically modified maize (known as GM maize or BT maize) are already growing across America, made by five companies inclusing Monsanto, Novartis and Pioneer Hybrid International.

So is the monarch butterfly threat real? As with all such studies, one finding does not prove a case, but it does raise urgent questions. Expect the study to be repeated by several different centres just to make sure. If they find the same damage to Monarch butterflies or to other insects, be sure that there will be a huge backlash against some biotechnology companies, which are already being seen as placing profit before environment.

However the most urgent question of all is not what happens to monarch butterflies but to humans. Butterflies live only a very short time so any toxic effects are obvious in studies lasting just a few weeks. However, the same studies in humans take at least thirty years because it can take that long for medical problems to develop after low grade exposure.

The situation is worse than that: Monarch butterflies can be reared in controlled laboratory conditions from eggs to death, varying only exposure to BT maize pollen. Such studies of diet in humans are becoming almost impossible. Already every person in America is eating GM maize and a growing number of other products. These foodstuffs have been mixed at the farm collecting stage with non-BT original strains. They are not separated in the final retail products and there is no clear labelling.

Just suppose that ten of the thousands of genetically modified vegetables or fruits sold over the next twenty years produce health damage. How are you going to tell which ones are the culprits?

Over the last fifty years, sperm counts in men have fallen by half in Europe. No one really knows why because so many things changed in our diet, the environment and in lifestyles over the period. In the same way, by altering the diet of the entire developed world it will be impossible to blame - say - a genetically modified cabbage containing scorpion poison genes (made in Oxford over five years ago) for a rare kind of cancer or nerve damage.

BT maize is very unlikely to damage human health, but other results of genetic experiments could. These are some of the reasons why the British Medical Association published a report urging caution in May 1999.

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- Monarch butterfly - sanctuary
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- Monarch butterfly - loads of useful links for projects
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- GM food scientist Arpad Pusztai's controversial study on damage to rats