



## **GM crops: the ethics debate**

*The crop scientist*

### **Jonathan Jones, Crop Scientist:**

For the last 20 years, 50 years or so, scientists have said things like 'Nuclear power make electricity too cheap to meter'. And then it turns out not to be true. And then they've said things like 'all these chemicals will solve all your problems and not give you any new problems'. And there's an example of thalidomide and so on. And so now along come biologists and say 'look, this is the most benign wonderful new technology that's been invented for agriculture in the last 100 years', and nobody believes us. But that doesn't mean to say that what we're saying isn't true. Because it is true.

Janina (in greenhouse)

...susceptible. But now that they started to flower, they became resistant.

### **Narrator:**

Jonathan is examining wild species which may have particular qualities that could be very useful.

### **Jonathan Jones:**

I think we should think about what's in our enlightened self-interest. And certainly I would define my self-interest as retaining as much species diversity out there as possible. I would not regard it as in my self-interest to cut down so many rain forests in Africa, or Indonesia that the great apes become extinct in the wild.

### **Narrator:**

Definitely anthropocentric, but biology also brings it's own brand of biocentric thought.

Jonathan Jones

People who aren't in biology can't conceive of how we practicing biologists conceive of the word life. What it means. And so people who don't share that find what we do unsettling I think.

### **Narrator:**

In biology, humans are just one species among many.

### **Jonathan Jones:**

All forms of life are basically, they're the same. At least they have a common evolutionary origin, whether it's bacteria, or yeast, or plants, or worms or flies, or us. And you can see the same mechanisms that work in all of these different organisms. And so that's why for me it's no big deal to get, say, to contemplate getting a gene for anti-freeze properties out of an arctic fish, and putting it in tomato to try and reduce frost damage. It's just a protein that does a job.

### **Narrator:**

The scientists' work is about controlling disease. Jonathan's colleague Janina is inoculating these leaves with a deadly infection called 'Potato Blight'. The disease that started the Irish potato famine.

### **Jonathan Jones:**

We are looking for resistance genes in different potato species. And we figure if we can clone the genes that confer disease resistance, and get them into cultivated potato and manage them according to some ideas we have to provide durable resistance, then this would dramatically reduce the need to apply fungicides to control this disease.

### **Narrator:**

The leaves from the wild relatives of the modern potato. If they are able to withstand the disease, they could contain a gene for resistance. This species is resistant. While this one isn't. But why don't we just eat the wild varieties?

**Jonathan Jones:**

Wild potatoes are poisonous. They contain a lot of glycoalkaloids and other compounds which mean if you eat them, they will make you very ill indeed.

**Narrator:**

Over thousands of years human beings have changed crops to make them safer to eat. They did it by selecting pollen from certain plants to cross-fertilise others. This supports an interpretation of nature, as a threat to mankind.

**Ruth Chadwick, Bioethicist:**

From his perspective it can't be assumed that what we call natural is necessarily safe. He does show that we have bred potatoes to be edible and so genetically modifying potatoes to make them resistant to disease might be seen only as a slight variation on what's been done in the past.