



STEP INSIDE

Explore our plant biotechnology labs

PLANT BIOTECHNOLOGY: Greenhouse

Presenter

Let's start at the beginning, with the tobacco plant itself. Many of the substances that end up as toxicants in smoke can be found in the plant's cellular structure, and others develop while it's growing or being processed.

It's here, through a combination of natural breeding, cross breeding and modification that BAT scientists are attempting to develop tobacco varieties that potentially have fewer harmful toxicants.

Now to some of you that may sound like Genetic Modification, and it is. But BAT doesn't use any GM tobacco in the products that go on the shelves. This is purely for research.

Once the dominant genes have been identified it's then time to work out how to cross-breed the plants naturally to try to remove the toxicants.

We're well aware that scientists have broken the human genome and use DNA for everything from investigating crimes to identifying children's true parents. Well this type of science isn't limited to humans. The team here at BAT are more than capable of analysing the DNA of the tobacco plant to the same extent.

PLANT BIOTECHNOLOGY: Genetics lab

Presenter

Freezing the plant means the DNA can be more easily extracted. Once this is done this machine enables us to sequence it. So once you've built a picture of the genome, what then?

Dr Jesper Grønlund, Gene Discovery Manager

Then we decide which genes to put into new plants we only understand about fifty per cent of the gene so far...

Presenter

So there's a lot to discover. And if you can link certain genes with certain traits, you might be able to grow new varieties of tobacco that could be less harmful?

Dr Jesper Grønlund, Gene Discovery Manager

Yes – that's the idea. And also we're looking at other aspects, such as whether we can grow plants more sustainably without the need for pesticides.

PLANT BIOTECHNOLOGY: Biochemistry lab

Presenter

Once a new tobacco plant is grown the leaves are analysed here in biochemistry, by scientists like Matt. This analysis determines if toxicant levels have changed or not. But what do the results mean to us?

Matthew Hope, Senior Technician

Well they help us to decide which varieties could benefit from much larger field trials.

Presenter

So if the plant is the beginning of the story. What's next? The product.

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