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The public is finally coming round to GM crops



(Photo: Christopher Furlong/Getty Images)

Tom Bawden 12:07 interview of Prof. Christine A. Raines

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The public has become much more welcoming towards genetically-modified crops in the past few years, preparing the ground for them to be introduced to the UK, a leading expert has predicted.

Professor Christine Raines is in charge of a major GM project that could herald the beginning of a new era in an area that detractors say has seen disappointing progress in the past three decades.

The project, which the government will decide whether to approve next March, would involve trialling a new type of GM wheat – the first time a crop has been engineered to produce a higher yield.

Increase rather than loss prevention

Previously, GM plants have been genetically modified to make them resistant to pests and pesticides, that seek to protect the crop from disease rather than actually increasing the output through more or larger grains.

In this latest trial, the wheat would be modified so that it produces higher levels of an enzyme to enhance the photosynthesis process, which turns sunlight and carbon dioxide into plant fuel and could boost grain yields by up to 40 per cent.

If the project is approved – and the technology found to work – it could pave the way for a new generation of GM crops and help solve the world’s food crisis, Prof Raines says.

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Christine Raines “There have been a number of trials where pesticides and herbicides and other types of genes have been introduced that would enable the plant to fend off some kind of beast or another,” Professor Raines, of Essex University, told i.

“What we’ve been doing is to improve the natural process in the plant in order to increase yield, rather to prevent a loss of yield from pests – as far as I’m aware this has never been done,” added Raines, who rejects criticisms that the GM industry has been a disappointment but concedes it certainly hasn’t reached its potential. She argues that progress has been held back by a combination of over-promising on the part of producers, combined with government and public concern about an unknown technology. “GM hasn’t achieved its potential and maybe the perception that was given a number of years ago of how quickly this technology could deliver maybe led people to expect too much too soon,” Raines said.

The tide is turning

But the tide of opinion is turning.

“I feel personally that there’s a much more positive attitude towards GM. I taught a class of 20 year olds last week and I asked how many are pro-GM and the whole room put their hand up.

“If I’d done that five or ten years ago there would have been a significant minority would have not been comfortable with it,” said Raines, who is working with Lancaster University and Rothamsted Research on the new strain of GM wheat.

“I don’t know if people just become more used to it. When it really started to take off in the 1980s, it was a new technology and people were anxious about it.

“I think the generation we have coming through now are being educated on genetic manipulation, they understand about genomes better than we did back then and there’s more knowledge of that technology and what it’s potential is that there was before,” she said.

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"People are becoming familiar with the technology. There's been a lot of research on it and not one single bit of evidence that this technology's any more dangerous than any other technology we use to feed our crops. Thirty years ago there was no body of evidence that people could call on," she said.

Prof Raines refuses to be drawn on whether Brexit will be a good thing for Britain's GM industry, which is regulated by the EU which has proved so strongly opposed to genetic crop engineering that it has only ever granted one licence to grow a GM crop commercially – an insect resistant strain of maize that is grown in small parts of Spain and Portugal. And that was 15 years ago.

However, she concedes a break with Europe will give Britain greater autonomy when it comes to GM crops, which at least provides an opportunity to push the technology in this country.

"Let me put it this way. If we want to exploit GM technology then it will need government backing. It's legislation isn't it. I can't just put something in my garden. In order for that to be enabled you're going to have to have government support for that. I think it would be very good. It would be a real pity if we don't embrace the available technologies to try to produce the best plant varieties that we can."

How does GM work? Genetically modified crops are plants which have been engineered to introduce a new trait, such as the ability to withstand drought or pests or to produce a higher yield. Scientists cut and paste a gene from another organism with these capabilities and insert it into the genome of the plant. The GM wheat in this trial has been engineered to include genes from stiff brome – a grass species related to wheat – which produces the enzyme SBPase. This enzyme plays a key role in photosynthesis, the process by which a plant converts sunlight and carbon dioxide into energy or fuel. And boosting its presence will allow the wheat to absorb more CO₂, which should increase yields. Laboratory tests using potted plants produced yields between 20 per cent and 40 per cent higher than normal. The researchers now want to test the product in the field – at Rothamsted Research in Harpenden in Hertfordshire – to see how well it performs in normal conditions.