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for improvement

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Chris



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The Arab Spring, what's that got to do with the green-fingered brigade at NIAB off Huntingdon Road? More than you might think. **Jenny Chapman** went to see **Dr Tina Barsby**, NIAB chief executive, and was given some surprising food for thought. >>>

Before you rush out to Waitrose (although you may already be there picking up a copy of this magazine) to cram a couple of trolleys with the staples, Dr Tina Barsby, chief executive of NIAB, concludes by telling me she is optimistic about the food security challenge.

Optimistic but not complacent. There is a real possibility the world will not be able to feed itself if the challenge is not met. There will be around nine billion of us by 2050, and I'm pretty sure I heard on the radio this morning that there are now seven billion. We expect crop problems in lands close to the equator, but this year we had the driest April ever here in the UK and fires decimating our woodlands. Even so, we have the potential in Britain to increase yields, and to grow more and new crops to feed other countries.

"There are parts of the world which currently grow their own food but will not be able to in future," Dr Barsby says.

satisfied as critical resources such as water, energy and land become increasingly scarce. The food system must become sustainable."

"It does not talk about how we are going to respond," Dr Barsby says. "It's up to organisations like us to read the report and decide what to do.

"It's about ending hunger and reducing emissions which contribute to climate change."

NIAB, once upon a time known as the National Institute of Agricultural Botany, was established in 1918, just after the First World War, when this country was facing a food crisis. The idea was to help farmers to produce more through genetics, plant breeding.

"And now we are looking at a global food challenge, but the issues are the same. As we did then, we need to look across the supply chain and see what science can offer"

Amazingly, considering the importance of what NIAB was created to do, it was set up by charitable



The name of the game is, of course, climate change, and while it is and will be devastating for the arid and overheated, there are benefits to be had here in the UK: "As long as it keeps raining," Dr Barsby adds. "And possibly change what we grow, crops that will grow faster, for instance, corn, which is not generally grown here now, and the things we do grow at the moment, we need to produce more of them.

"Producing more food on less land is the challenge, because there isn't any new land coming into production. There is a lot of modelling telling us what might happen but we won't really know until it does, and at what speed."

The Government has recently published the findings of the Foresight Project on the future of food and farming, and Chief Scientist, Prof Sir John Beddington does not pull any punches: "The case for urgent action in the global food system is now compelling.

"We are at a unique moment in history as diverse factors converge to affect the demand, production and distribution of food over the next 20 to 40 years. The needs of a growing world population will need to be

donations to sit between basic science and the farmer. And this is what it still does. Take one of the latest projects, Innovation Farm, which is described as taking over where the Eden Project leaves off. It's a demonstration and networking facility in Cambridge showcasing new crop technology. The cultivating part of it sits in fields at Histon and in a splendid new greenhouse built with some of the proceeds from the land NIAB sold off on Huntington Road to David Wilson Homes.

There are workshops and open days, all about new crops as food and as fuel. Innovation Farm is just coming to the end of its pilot year and looks set to flourish. A series of events blending seminars, networking, lunch and guided tours is taking place throughout the summer. Tina is looking for sponsors. But this is only part of NIAB's work. Members are trialling crops tended by the Cambridge team on small plots around the city, and the combined effort will hopefully lead to crops that will save the world in more than one sense. →

“ There are parts of the world which currently grow their own food but will not be able to in future ”

Dr Tina Barsby

“I think we are already seeing problems, not in this country, associated with food shortage. I think it is underlying what has been happening in the Middle East. Food prices in Egypt have rocketed and contribute to the problems there. The middle classes are struggling to afford food they could get easily three or four years ago.”

A staple of the Middle Eastern and North African diet is the fava bean, which is a bit like a broad bean, and a crop Tina says is ripe for improvement. In the UK decades have been devoted to getting better results from wheat, oilseed rape and potatoes, but the fava bean has yet to have its day.

“ The first GM crop in America was 15 years ago and there has been no harm ”

“It is a legume and therefore doesn't need as much nitrogen fertilizer, which is one of the biggest causes of climate change through its production.”

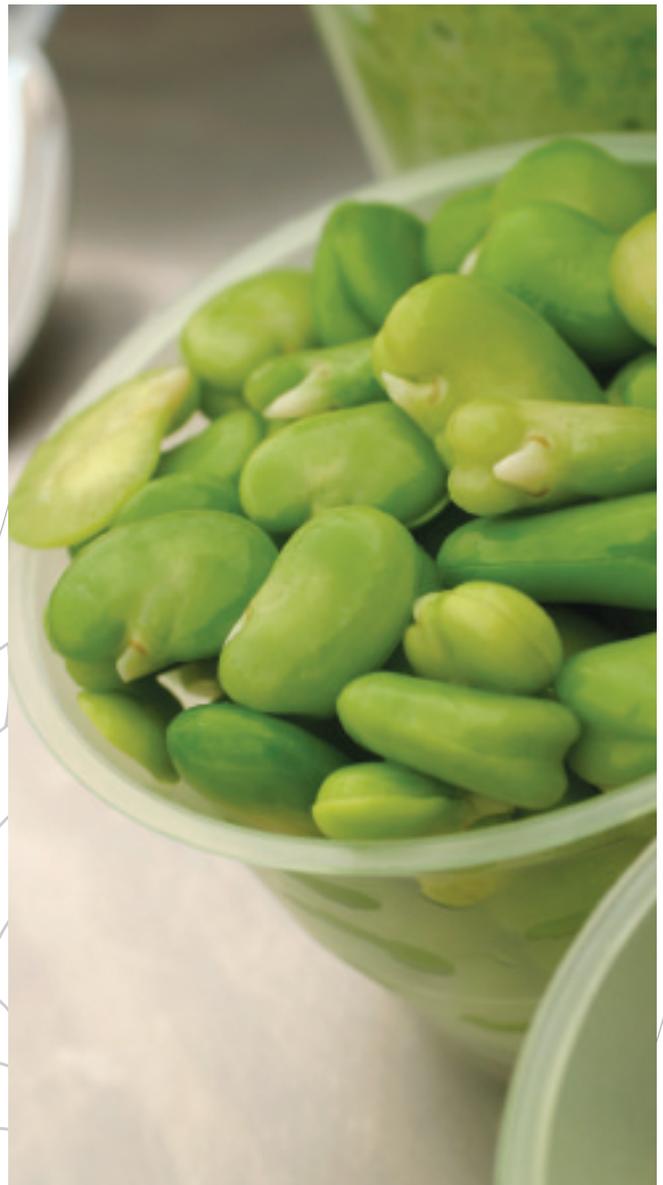
Growing crops which are popular in other countries is, Tina says, a medium term solution, but longer term we need to be looking at completely new crops, not only to feed the world but to keep it peaceful.

“In 2008 there was a spike in food prices and riots. Prices went down, but now they are up again. Five years ago wheat was £60 a ton, today it's £200. Wheat is traded globally, so climate change in other parts of the world affect prices here and we are already seeing the effect of the draught in Australia.

“We need to produce more but we also need to be more creative with things like beans and to keep our eyes open for novel crops. No, it's not about GM, but GM is certainly one tool and it can help.

“The first GM crop in America was 15 years ago and there has been no harm. The question whether we should have GM crops here is being raised again. GM per-se is not harmful, so what can we do with it and what are the benefits and the risks (crop-wreckers perhaps?).

“We could increase protein content in wheat, and enable crops like wheat to fix their own protein which would mean not having to use nitrogen fertilizer at all, bringing huge savings in cost and climate change; and this can only be done using GM, because wheat does not have its own genes to 'fix' nitrogen, we would need to transfer this characteristic from beans.” >



Similarly, maize and sugarcane could lend their ability to fix energy from the sun to crops grown here: "Wheat is already a cross which happened 12,000 years ago in Iran between two wild grasses, and now it needs crossing again to suit the changing climate, because our existing wheat in this country has adapted over the years to the English climate. We need hybrid vigour, enhancement of the gene pool.

"When people say, hey, we really need to do something about yields which are creeping up, but not fast enough, well GM could do it.

"No, we are not self-sufficient in this country, and food has to become more expensive. The proportion of our income spent on food has gone down, but it is going to go up again as it becomes more scarce and difficult to produce."

Something we have not touched on so far is waste, all those sell by dates which make John Humphrys even more peptic than usual and has him boasting about eating six-year-old yoghurts. And then there are the rude carrots, wizened tomatoes and spotty greens which supermarkets deem too vulgar for us to see on their shelves (unless they are labelled "organic") – incidentally, Dr Barsby doesn't reckon there's much difference between organic and ordinary when it comes to the crunch.



By the end of our discussion I am asking if we should all, to be on the safe side, be turning over our flower beds to veg patches, but Tina says it's not that easy anymore, we don't have the spare time needed to tend the patch and there just isn't enough land to make a real difference in this way.

It's looking a bit bleak, even if I can still keep my flowers. What does Tina think?

"I am optimistic and more so because, being close to the science base, I see such wonderful things going on. There is a lot to offer."

