

Taking a genetics approach to improving hop varieties

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Reeta Chakrabarti, Anchor: When you next head down to the pub, spare a thought for the work going on to secure the future of the Great British pint.

Scientists in Kent are working with brewers to try to identify genes in hop plants which are more resilient to climate change, while also producing new varieties and flavours of bitter.

Our Science Correspondent Pallab Ghosh has a taste of what they're planning.

Pallab Ghosh (PG): It's a great British tradition, but one that's now under threat.

Mm! That distinctive flavour is down to the hops that are used in the brewing process.

But there's a problem. The hop plant doesn't like the hotter, drier conditions we've had in recent decades, and production has plummeted. It's also affected that lovely, bitter flavour. And with climate change, the problem is only going to get worse.

Dr Helen Cockerton is identifying genes in hundreds of different hop plants that will make them more resistant to climate change. But the new varieties also have to be acceptable to the brewing industry.

Helen Cockerton (HC): Brewers want good tasting beer, to produce the flavour profile that is particularly desirable for the beer that they hope to produce.

Whereas growers are more interested in having plants that are able to survive but also providing a good yield in order to give them a large crop.

PG: Can't you have both?

HC: Yes, and that's exactly what we're hoping to do.

Klara Hajdu (KH): So we have some new hop varieties here in these beakers...

PG: These new varieties are created by hop breeders, such as Dr Klara Hajdu, using the rub and sniff method.

This one is an American variety.

It smells of beer.

Experts can tell from the aroma what the beer will taste like, and they're cross-bred with English hops that grow well in the current climate.

KH: Arguably, the most important is to have competing varieties

with the import hops, and they have to be very fruity and punchy.

PG: *Currently, it takes ten years to produce a new hop variety for a commercially sold beer. But the new research will greatly accelerate this process, by identifying the key genes in them for flavour and resilience to climate change.*

Britain's oldest brewing company, in Faversham in Kent, says that the research is vital for the future of the British pint.

Danielle Whelan (Shepherd Neame): *I mean, I think without it, it's going to die off. I mean, those hops are vital to the British pint whether it's a new British pint or an old-school British pint. But without that, we're just going to be importing beer and we won't have that culture here any more.*

PG: *It's a race against time, with British summers becoming hotter and drier. But the scientists are optimistic that their research will give brewers a fighting chance of saving the pint.*