UNIVERSITY OF CAMBRIDGE

Can we improve crop pollination by breeding better flowers?

Latest research shows that flowers' iridescent petals, which may look plain to human eyes, are perfectly tailored to a bee's-eye-view.

There are lots of optical effects in nature that we don't yet understand... we are finding out that animals and plants have a lot more to say to the world and to each other

Beverley Glover

Iridescent flowers are never as dramatically rainbow-coloured as iridescent beetles, birds or fish, but their petals produce the perfect signal for bees, according to a new study published today in *Current Biology*.

Bees buzzing around a garden, looking for nectar, need to be able to spot flower petals and recognise which coloured flowers are full of food for them. Professor Beverley Glover from the University of Cambridge's Department of Plant Sciences and Dr Heather Whitney from the University of Bristol found that iridescence – the shiny, colour-shifting effect seen on soap bubbles – makes flower petals more obvious to bees, but that too much iridescence confuses bees' ability to distinguish colours.

Whitney, Glover and their colleagues found that flowers use more subtle, or imperfect, iridescence on their petals, which doesn't interfere with the bees' ability to distinguish subtly different colours, such as different shades of purple. Perfect iridescence, for example as found on the back of a CD, would make it more difficult for bees to distinguish between subtle colour variations and cause them to make mistakes in their flower choices.

This colour recognition is vital for both the bees and the plants, which rely on the bees to pollinate them. If petals were perfectly iridescent, then bees could struggle to identify and recognise which colours are worthwhile visiting for nectar – instead, flowers have developed an iridescence signal that allows them to talk to bees in their own visual language. Glover and her colleagues are now working towards developing real flowers that vary in their amount of iridescence so that they can examine how bees interact with them.

For more information contact Beverley Glover (bjg26@cam.ac.uk) at the Department of Plant Sciences (www.plantsci.cam.ac.uk)