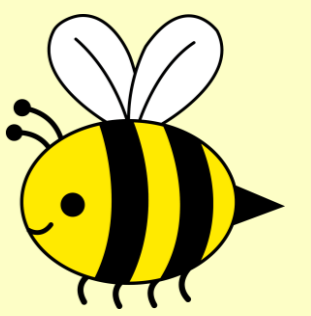


Saving the Bees with Maths

and Dr Laura Jones



Dr Laura Jones

About Laura

Dr Laura Jones is a scientist at the National Botanic Garden of Wales. She's finding out the bees' favourite flowers. Because bees who find their favourite flowers, get to eat their favourite foods. And bees who get to eat their favourite foods are healthy and happy. Laura's research can be used to help make bees happier all over the UK!

Laura found out which plants honeybees liked best by studying their honey. By using special ways to look at the honey she found out which plants the bees used when making the honey. Nectar is the sticky sweet liquid that the bees take from the plants to feed themselves and their hive! Bees are very important because when they land on plants they get covered in pollen, by spreading pollen they help other plants grow.

441 is a square number
 $21 \times 21 = 441$



Dr Laura Jones says:

"Maths has helped me solve problems, discover trends, and understand the world around us. With maths we can take our research questions from 'we think' to 'we know'."



What plants do Honeybees like best?

This research found that honeybees love white clover nectar and pollen!

In recent years there has been **27% less** white clover flowers in managed grasslands, That is over one quarter!

There are less white clover flowers because:

- They are used less by farmers in their fields
- There have been more fertilizers that stop the flowers
- Herbicides are being used more, Herbicides stop unwanted weeds growing but they are strong chemicals and they hurt the flowers
- The clovers are getting trimmed too much when the grass gets cut

Even though there are less white clover flowers, Laura still found lots of white clover in the honey. This means that the honeybees still want the white clover flowers and are possibly flying further to find it.

Honey Maths!

In her research Laura used lots of **maths** to understand her findings and create graphs.

- She **counted** how much of each type of plant was in each pot of honey.
- She **mapped** out areas around hives using a big **circle** with a 2km **radius**
- Laura used lots of **graphs** to find out how the honey has changed since 1952

Laura showed other scientists that her research was helpful by using graphs to show that the areas surrounding the beehives in her study were a good representation of the whole of the UK.

Blackberry plants

The honey testing results showed that since the last survey in 1952, blackberry plants have now become the plant that the honeybees have collected their nectar from most.

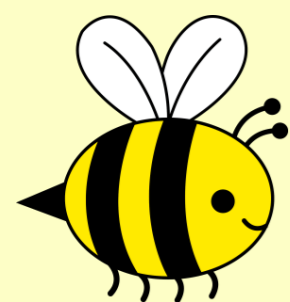
Blackberry plants have similar flowering seasons to white clover, both providing pollen and nectar, but this swap may not be providing the bees with the same nutritional benefit. There is slightly less protein and other essential things for healthy bees!



Blackberry plant

Results: Happy Bees!

Laura's research has helped us understand which plants honeybees all over the UK get their nectar and pollen from. With her data she discovered the most important plants per season for the bees to gather nectar. The information collected will now help beekeepers and gardeners to grow plants that will make the honeybees happiest.



White Clover

How can you help the bees?

Get excited about science and maths, you can be a scientist when you're older too!

Plant wildflowers that are local to your area

Keep learning about bees and our environment



Information collected from: Shifts in honeybee foraging reveal historical changes in floral resources
<https://www.nature.com/articles/s42003-020-01562-4>

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