

Classroom Activity

10 Big Question: How can we feed the world sustainably?

Experiment: Nectar Production

Overview

Nectar is a renewable resource. Plants utilise nectar production strategies that maximise cross pollination, the movement of pollen from one flower to the next. If a flower has too much nectar the bees will stay on the same stalk rather than move around which is bad for cross pollination. Too little, and the bees will not come at all. This experiment compares the behaviour of bees on flowers that have and have not been covered for a period of time. For this experiment to be successful, the weather forecast should be fine. Caution should be taken to ensure all people involved in this activity are not allergic to bees.

Materials

- Large brown paper bags
- Some kitchen string
- Flagging tape (coloured wool or more kitchen string)
- Stopwatches
- A recording sheet for each observer or observer pair. See next page.

Procedure

1. Find a flowering bush that is heavily visited by honeybees. Rosemary is a good plant for this experiment. A low Grevillea bush will work too.
2. Cover some of the flower stalks with a large paper bag and tie at the bottom (these are the covered stalks).
3. Tag an equal number of other flowering stalks with flagging tape (these are the uncovered stalks).
4. The next day, and starting with the uncovered stalks, observe the honeybees on the stalks in the following manner. Record for five bees:
 - a. How long the bee stayed on the flower.
 - b. Where the bee moved to after leaving the flower e.g. if that bee went to i) another flower on the same stalk, ii) another stalk or iii) out of sight.
5. Untie the paper bags and repeat the recordings for the previously covered stalks.

Analysis

In the classroom combine your results. Did your bees stay much longer on the flowers that had been covered? Why? Did the bees on the uncovered stalks fly much further away? Why?

Scoring bee behaviour

For five bees score how long the bee stayed on the flower and where it flies after its visit.

Under 'How far' indicate whether the bee:

- Went to another flower on the same stalk (and if so, what is the approximate distance),
- Went to another flowering stalk
- Flew away

First the uncovered stalk:

Behaviour of honeybees on flowers that had not been covered with a bag		
Bee number	Number of seconds on flower	How far
1		
2		
3		
4		
5		

Now untie the covered stalk and repeat:

Behaviour of honeybees on flowers that had been covered with a bag		
Bee number	Number of seconds on flower	How far
1		
2		
3		
4		
5		

Do you notice any differences in the foraging behaviour of the bees?

What might cause these differences?