Smells like bees' spirit

August 13 2008

RFID tagged bumblebees in their nest

Bumblebees choose whether to search for food according to how stocked their nests are, say scientists from Queen Mary, University of London.

When bumblebees return to the nest from a successful foraging mission, they produce a pheromone which encourages their nest mates to also go out and find food. Scientists had originally thought that these pheromones elicited a standard response from all bees. But new research from Queen Mary's School of Biological and Chemical Sciences has shown that bees' response to the pheromone changes according to their situation.

Dr Mathieu Molet and Dr Nigel Raine have shown that worker bees are much more likely to respond to the pheromone and leave the nest in search of food, if the colony has little or no food reserves left.

"Flying around all day to find nectar and pollen from flowers is hard work. So it makes sense that bees are more likely to respond to the

pheromone when honey reserves are low," said Dr Molet.

Writing in the journal *Behavioral Ecology and Sociobiology,* the NERC-funded team explain how they used radio-frequency identification (RFID) technology (the same electronic tagging system used in a London Underground oyster card) to automatically record the activity of bees in the lab.

Different colonies of bumblebees (*Bombus terrestris*) were stocked with different levels of food reserves (honeypots). Artificial foraging pheromones were applied to the bees, and they were monitored over 16,000 'foraging bouts'. The response to the pheromones was stronger in colonies with less food - with more worker bees becoming active, and more foraging bouts being performed.

The team's findings suggest that the pheromone can modulate a bumblebee's foraging activity - preventing needless energy expenditure and exposure to risk when food stores are already high. In future, such artificial pheromones could also be used to increase the effectiveness of bumblebee colonies pollinating commercial crops, such as tomatoes.

Source: Queen Mary, University of London

Citation: Smells like bees' spirit (2008, August 13) retrieved 8 April 2024 from https://phys.org/news/2008-08-bees-spirit.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.