



Lifetime variation in the foraging performance of individual honey bees

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For honey bees, macronutrients are supplied from pollen (proteins and fat) and nectar (sugars). The foraging force must supply its colony with a precise balance of both resources to support colony growth. Inter-individual variability within the foraging force has long been observed, in term of nectar or pollen collection and differences in the foraging activity level. But so far, the nature, the cause and the consequence of such inter-individual variability are not well understood. To explore this here we automatically recorded the weight of bees on departing the hive, their trip durations and videoed returning bees to visually score pollen collection. Only a subset of foragers collected pollen, and no bee foraged exclusively for pollen across their lifetime. A subset (19% of the foragers) of very active bees performed 50% of the colony's foraging trips. Those individuals were more efficient at collecting pollen and nectar, and their efficiency was linked with their foraging experience. Our data bring new information on how a social insect collectively achieves nutritional balance.