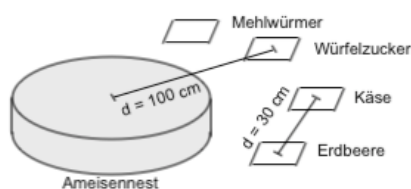


Introduction

Can the mutualism between *Formicidae* and *Aphidoidea* be exploited for an ecological intervention strategy to crop damage? *Formicidae* attendance to *Aphidoidea* moderates crop damage through aphid population growth and increased plant sap-honey dew metabolism. In this pilot study, we tested whether *Formicidae* can be offered a better feeding site as an incentive so that, at a minimum, the trophobiotic interaction is blocked and, at best, the *Formicidae* take the *Aphidoidea* with them as they translocate. *Formica* mainly feed on *Arthropoda* and the honeydew of *Aphidoidea*. The preferred composition of the diet follows the seasonal rhythm of the age structure of the colony, so that in May and June the high proportion of larvae and pupae is accompanied by the highest demand for proteins and saccharides are avoided completely during the period around the nuptial flight.

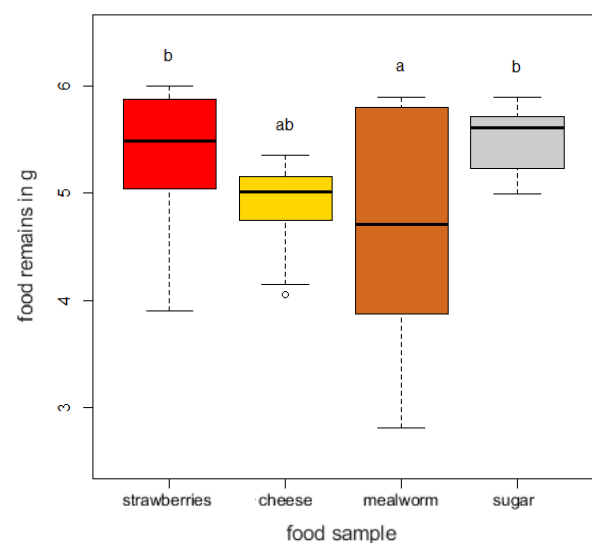
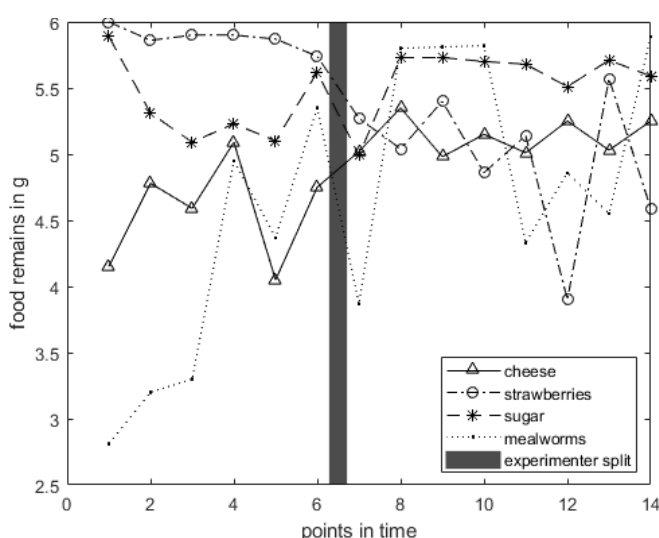
Methods



Food samples (cheese, strawberries, sugar, mealworms) were prepared and placed around mound nests ($n = 7$) for $t = 120$ min. Food sample weights were obtained before ($m = 6$ g) and after placement. As a proxy for food intake, the respective differences in mass were calculated.

Results

A Wilcoxon test indicated a significant preference for high protein food ($\bar{x} = 4.8$ g) over high sugar food ($\bar{x} = 4.8$ g) ($W(28,28) = 611$, $p < .001$). A Friedman test indicated statistically significant differences between food sources ($F(3,28) = 5.3$, $p < .01$). A Tukey-post hoc test was performed, which revealed that mealworms formed a distinct group compared to the high-sugar sources and cheese, which could not be clearly assigned to either group.



Conclusion

Formica might be harnessed for natural pest control of *Aphidoidea* by providing protein-rich food in summer. Food choices in the other seasons need to be investigated.