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### **HOW DOES FLOWER COVER AROUND PAN TRAPS IMPACT ON BEE SAMPLING RESULTS?**

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#### **ABSTRACT**

Pan traps have been used for sampling bees across a wide range of habitats and geographical regions for decades. Varying floral resources around pan traps may bias sampling results, possibly affecting standardization of sampling effort, a fundamental reason for choosing this sampling method. This raises questions about the suitability of pan traps for bee monitoring programs that sample sites with varying flower cover.

We investigated the effect of floral context around pan traps on sampled bee communities at agricultural sites around Braunschweig in a two-year field experiment. We installed 72 pan traps at 13 sites in 2021 and 2022, respectively, with equal proportions of color-context combinations per site (yellow, blue and white; center of flower strip versus adjacent to flower strip, i.e. at 1 m distance from the edge of the flower strip). We sampled bees for 24 hours three times (March/April, June, August/September) each year. Simultaneously, we assessed the percent flower cover in 2.5 m radii around each trap.

Collected bees totalled more than 3600 individuals. Statistical analyses of the two-year dataset revealed effects of flower cover interacting with bee taxon on detection probability per trap (Logit GLMM) as well as on the number of sampled bee individuals per trap (Negative Binomial GLMM). Based on our findings, we encourage bee researchers to assess flower cover around traps to account for differences in trap attraction, especially when sampling bees in habitats with contrasting floral resource availability