



## Twelfth International Symposium on Pollination (ISPXII)



16 - 20 October 2023

Kirstenbosch Botanic Gardens, Cape Town, South Africa

### **SIZE MATTERS: NUMBERS OF COLLECTED BEE INDIVIDUALS AND SPECIES INCREASE WITH PAN TRAP DIAMETER**

André Krahnert<sup>1</sup>, Felix Klaus<sup>1</sup>, Anke C. Dietzsch<sup>1</sup>

Julius Kühn Institute (JKI) – Federal Research Centre for Cultivated Plants, Institute for Bee Protection, Braunschweig, Germany<sup>1</sup>

#### **ABSTRACT**

Pan traps are an established method for sampling bees and have been used across a wide range of habitats and geographical regions. Despite the long tradition of this method, uncertainty persists as to how pan-trap design influences sampling results.

We investigated the effect of pan-trap diameter on sampled bee communities at agricultural sites around Braunschweig, Germany. We installed 108 pan traps at six sites, with equal proportions of color-diameter combinations per site (yellow, blue and white; 22 cm versus 12 cm in diameter). We sampled bee individuals in three rounds of 24 hours (March/April, June, August/September) in 2021.

We collected 1154 bee individuals, which to a large extent have been identified to species level. We observed interacting effects of pan trap size and color on the number of sampled bee individuals and species. For all pan trap colors, larger pan traps collected significantly more bee individuals and species than smaller pan traps (Abundance: Negative Binomial GLMM; Species: Poisson GLMM). At all sampling sites, the estimated number of sampled species, based on the same number of sampled individuals (individual-based rarefaction), was higher for large pan traps than for small pan traps. Based on our findings, we advocate for the use of larger pan traps for sampling bees in order to increase trap efficacy and efficiency.