Honey can be sampled directly from the comb, by squeezing cells or using a vacuum pump. In a similar way, wax and royal jelly can also be collected.

Guttation fluid can be sampled directly from certain crops, which requires careful consideration of the crop irrigation and climatic conditions for guttation production (and usually some very early mornings!).

Soil cores can be sampled to inform on likely exposure to ground-dwelling bee species, and/or the potential for systemic residues in succeeding crops.

Future work

With the combined expertise of Staphyt's Bee Team, consisting of regulatory, scientific and field specialists, together we can provide both practical (field) and regulatory (consultancy) support on the conduct of pan-European field and tunnel residue studies for environmental and consumer risk assessments. In the coming seasons, we will continue to explore the following open questions:

Does the confinement of bees to a tunnel impact bee behaviour and are residues therefore still comparable to realistic field scenarios?

Is it possible to respect the intended interval time between applications if a surrogate crop is used?

Can the sampling methods be adapted to improve collection efficiency? i.e. to reduce the resources (manual time and cost) required, and increase the quantities of each matrix available for subsequent residue analysis?

3.5.P Establishment of honeybee brood studies under semi-field conditions in Korea

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Abstract

Honeybee brood studies under semi-field conditions were carried out to select appropriate toxic standards from 2016 to 2019 in Korea since fenoxycarb is banned for use because of regulations. The semi-field test tunnels were located in the field study area of the National Institute of Agricultural Sciences (NAS). The experiments included three treatment groups (control, toxic reference chemicals (dimethoate or diflubenzuron), and test materials), each with three replicate tunnels. The honey bee colonies were introduced in the tunnels with a size of 70m^2 containing flowering *Brassica napus*. The dimethoate emulsifiable concentrate (EC) 46% (400 g dimethoate a.i./ha) and diflubenzuron wettable powder (WP) 25% (600 g, 800g diflubenzuron a.i./ha.) were used as reference chemicals. The mortality of the honey bees, flight activity, condition of the colonies, and brood development were assessed during the 28 day testing period following BFD 0 (brood area fixing day 0). For the honey bee brood assessment, 200 cells containing eggs were selected and evaluated by the digital photo method. The mean brood termination rates (BTRs) ranged from 20.5 to 47.3% in the control groups from 2016 to 2019. The toxic reference treatment with dimethoate or diflubenzuron led to a drastic reduction in the brood development, resulting in BTRs ranging from 68.0 to 100.0%. Clear adverse effects were observed in the brood development of selected eggs after treatment with two toxic references. These two chemicals could be appropriate as toxic reference compounds, depending on the study aims, for semi-field tests in Korea. Recently, the method guideline of honeybee *(Apis Mellifera L.)* brood test under semi-field conditions has been published in the agricultural chemical regulation laws of Korea. In the near future, a ring test of the semi-field test among other companies and research centers will be performed to evaluate and validate the test method in Korea.