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A WALK OF 20 YEARS FOR BUMBLE BEE HEALTH: FROM RISK ASSESSMENT OF PESTICIDES TOWARDS ENTOMOVECTORING FOR ENHANCED POLLINATION AND BIOCONTROL

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ABSTRACT

In this paper, I describe the first efforts in the early 2000s with the design of standardized bioassays with use of micro-colonies to assess the risk to bumble bees (*Bombus terrestris*). Workers of *B. terrestris* are important pollinators of wildflowers and many crops in agriculture. In these tests, the workers were exposed to pesticides by exposure via contact or diet, and the resulting effects on worker survival and also sublethal reproductive effects of the nest were measured. With the development of for instance the neonicotinoid insecticides, their behavior effects on pollination services could also be assessed with an optimized design wherein the workers needed to learn foraging for food.

In continuation, I will describe the use of managed pollinators as disseminators of pollen and also biological control agents against plant pathogens. Examples in both open field and greenhouse settings are given to present the usefulness of this technology into more sustainable production systems and green agriculture.