

Activities of ESA SME Liaison to EPA, March 10, 2020
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Plans had been made with EPA OPP liaison, Dr. Kelly Tindall (PhD in Entomology, LSU), to travel to headquarters in Crystal City April 1-3, 2020. However, owing to the rapidly changing situation with the COVID-19 pandemic and rapidly spreading epidemic now facing a large proportion of States, she and I decided to postpone my visit. We agreed in a couple of weeks to revisit a date most likely in May after tracking the course of the U.S. epidemic. Like many other institutions, EPA may decide to have employees work remotely in the light of the uncertainty about the course of the epidemic.

As part of our planning for a EPA OPP visit, the following items were on our agenda, which I reported in my February report. First, EPA OPP is still interested in planning a symposium during 2023 when our national meeting is at National Harbor.

Second, Kelly Tindall and I further discussed the issue of documenting insecticides and fungicides that are truly systemic (phloem and xylem mobile), systemic because of xylem mobility, “systemic” due to translaminar movement, or only bioactive via direct surface contact. The concern by EPA relates to risk mitigation regarding appropriate droplet sizes for optimal insect/disease control. In other words, if a compound is truly systemic, than will larger droplet sizes be as biologically active as smaller droplet sizes? From EPA’s perspective, the larger droplet sizes are advantageous owing to the lower probability of extensive drift off field during application. Another reason for defining better (and with evidence) the nature of systematicity interfaces with the Ecological Fate and Effects Division’s (EFED) interpretation of whether a pesticide defined as systemic should change risk perspective.

I offered to investigate the literature to document whether commonly used active insecticide ingredients can be proven systemic (in its various forms) or just active via contact action. Presently, there is no aggregated source for this information beyond what a registrant claims. A model for developing a source of information is the Herbicide Handbook published by the Weed Science Society of America (WSSA). Each entry for the herbicides has a descriptor defining whether an active ingredient has systemic or contact activity. However, the definition of systematicity may need expansion beyond the simple descriptor of “systemic” or “contact” because of the extensive xylem mobility and translaminar movement discovered with the neonicotinoid insecticides and related compounds with similar mode of action (for example, the butenolides). One outcome of efforts to help EPA organize the information about insecticides specifically could include a seminar at headquarters.

Last month I reported about the Spartan Mosquito Eradicator (<https://spartanmosquito.com/mosquito-control/>) issue. To summarize, Colin Purrington, a photographer who has been highly negatively critical of this device, has used internet blogs and direct queries to State agencies and EPA OPP about problems in efficacy of the product. Recently, Mr. Purrington informed me that he is now being sued by Spartan in Federal court for defamation.

FYI: In the latest news on neonicotinoid insecticides and bees, a paper just published yesterday in the Proceedings of the Royal Society, Part B, has been receiving a lot of press, especially from environmental advocacy organizations. The bibliographic information is:

Smith et al.(2020) Insecticide exposure during brood or early-adult development reduces brain growth and impairs adult learning in bumblebees. Proc. R. Soc. B 287: 20192442.

<http://dx.doi.org/10.1098/rspb.2019.2442>.

I am pointing this paper out in my report because it has taken a unique approach, albeit it is reductive in that the measurement unit is a single bumble bee and not a colony level effect. The research used CT

scans of brain architecture and learning response in 3 and 12 day old adults after brood were exposed to sugar water treated with 5 ppb imidacloprid. Significant albeit arguably small differences were observed in treated and untreated colonies. The last sentence of the abstract states, "Our findings help explain how the onset of pesticide exposure to whole colonies can lead to lag-effects on growth and resultant dysfunction."