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3-2002

Response From Stark and Banks

John D. Stark

John Banks

University of Washington Tacoma, jebanks@csumb.edu

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Recommended Citation

Stark, John D. and Banks, John, "Response From Stark and Banks" (2002). *SIAS Faculty Publications*. 13.
https://digitalcommons.tacoma.uw.edu/ias_pub/13

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Response from Stark and Banks:

We appreciate Dr. Forbes's comments about our recently published paper, "Selective Pesticides: Are They Less Hazardous to the Environment?" (*BioScience* 51: 980–982), and we are glad to take this opportunity to clarify several important points.

The extinction concentrations that Dr. Forbes calls into question in her letter were calculated by running regressions on the curves depicted in Figure 1. Because different numbers of pesticide concentrations were evaluated for each chemical, we decided to use regression analysis to calculate the extinction concentrations, rather than simply read values off the curves, in order to avoid sample size biases. The apparent discrepancy between the data presented in Figure 1 and the extinction concentrations reported in Table 3 stems from the difference between the data points depicted in the graph and

the values of the x -intercepts used to calculate the extinction concentrations.

While we are acutely aware of the ECOFRAM and CEC risk-assessment policies and the safety buffers established by the United States, the European Union, and others, it is precisely the uncertainty inherent in carrying out risk assessment and the widely variable response to regulating such uncertainty that we're hoping might be better served by using a broader scientific approach. Our paper was not meant to be an indictment of currently used protocols in risk assessment, but rather to emphasize, as Dr. Forbes points out, the importance of considering different endpoints of effect.

Finally, we thank Dr. Forbes for pointing out some typographic errors that we overlooked—in particular the reversed prose in the footnote to Table 3. The footnote should read “Hazard quotients equal to or greater than 1 indicate that the chemical poses a risk.”

Dr. Forbes has been a proponent of population-level effects over the LC_{50} (see V. E. Forbes and P. Calow, 1999, “Is the Per Capita Rate of Increase a Good Measure of Population-Level Effects in Ecotoxicology?” *Environmental Toxicology and Chemistry* 18: 1544–1556) in the past, and we agree with her position that population-level impacts are more meaningful than individual-level effects such as the LC_{50} .

We hope that our paper and the work of Dr. Forbes and others will stimulate further discussion and research on this important topic.

JOHN D. STARK

*Ecotoxicology Program
Department of Entomology
Washington State University
Puyallup, WA 98371-4998*

JOHN E. BANKS

*Interdisciplinary Arts and Sciences
University of Washington
Tacoma, WA 98402-3100*