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Mr. William D. Ruckelshaus, Administrator
Environmental Protection Agency
1626 K St. NW
Washington, D.C. 20460

Dear Mr. Ruckelshaus:

I am writing to you in connection with your current consideration of the status of the herbicide 2,4,5-T. I have tried to keep abreast of studies of the toxocology of this compound and of the associated compound 2,3,7,8-tetrachlorodibenzon-p-dioxin. In particular, I believe that I am aware of the latest work in this area, including several investigations that have not yet been published.

I am convinced that we are not in a position to say with scientifically acceptable confidence whether the continued use of 2,4,5-T is or is not a serious hazard to public health. In support of this view I would cite two particularly important questions, which have not been staisfactorily answered or even squarely addressed:

1. Does the dose ~~threshold~~ response curve for 2,4,5-T teratogenicity show a threshold concentration below which there are no effects?

Several scientists, including some who have advised the Environmental Protection Agency, have assumed that such a threshold exists and that it lies in the range of a few mg per kilogram of body weight. Although we do know of some compounds for which this type of threshold exists, to my knowledge there is no statistically valid evidence for a threshold in the case of 2,4,5-T.

Large scale but still quite feasible experiments could establish whether or not there is a threshold dose for 2,4,5-T in the parts per million range in laboratory animals. If there is such a threshold and if human exposures are kept acceptably below that value, then and only then would I have confidence that 2,4,5-T itself does not constitute a teratogenic hazard to public health.

2. Are hazardous levels of dioxin present in human tissue and in the food chain?

The problem here is that there are simply no existing measurements showing that dioxin levels in human tissue and in the food chain in areas where 2,4,5-T has been used are below the levels that might constitute a public health hazard.

This is because existing procedures of chemical analysis are not sensitive enough to detect dioxin at toxic levels. Because of this state of affairs we must defer judgement on whether or not significant amounts of dioxin are entering the human diet, from 2,4,5-T or any other source. Fortunately, analytical techniques sufficiently sensitive to resolve this question now appear to be within reach but have not yet been applied.

In the short summary above, I have addressed only the technical aspects of the regulatory problem now before your agency. I fully realize that the question of whether or not to curtail the use of a chemical is a matter of public policy going beyond purely technical considerations, although technical considerations are certainly of very great importance. What I do wish to emphasize is that we simply do not yet possess adequate technical inofrmation to decide some of the most essential questions in the case of 2,4,5-T but that this information should be forthcoming if the proper experiments are undertaken.

Having attempted to summarize my understanding of the technical situation, I would like to take the liberty of offering a suggestion regarding the basic policy question. I do not have any exact or sophisticated measure of the value to our society of the continued use of 2,4,5-T for various applications. However, I am sure that you are aware of the fact that for more than a year little if any of the herbicide was available for domestic applications due to the heavy demands placed by the military in Vietnam. Perhaps something useful regarding the importance of 2,4,5-T can be learned from that experience. Unless the hardship of curtailing the use of this herbicide is judged to be very serious, I would recommend that the Environmental Protection Agency not reinstate 2,4,5-T at this time and postpone any final decision until the technical questions raised above are properly investigated. I would estimate that this would require a period of something between one and two years.

Sincerely yours,

Matthew Meselson

Matthew Meselson
Professor of Biology