

## Borrello Response to Use of DDT in Malaria-Affected Regions

Ed Lorenz's many responses to the persistent plea made by some (most notably Africa Fighting Malaria) to use DDT as "cure" for malaria show that there is a strong link between the people taking this stance and the petrochemical industry. Other evidence points to a profound ignorance or deliberate distortion of history.

Another, equally salient point in response to these people and to the aggressive anti-Rachel Carson revisionists involves what appears to be a blatant disregard for the peer-reviewed science that has shown, unequivocally, the serious environmental and health effects of DDT use. The preponderance of research supports some sweeping generalizations about the legacy of DDT production and use in this country. This is not an issue in which, "the jury is out." The science is consistent, real and damning. A few important findings are listed and supported below:

1. There is a measurable body burden of DDT/DDE that still shows up in American children today though the substance has been banned for over 35 years (see Kelce, et. al., 1996; Rogan, et. al., 1986).
2. DDT/DDE acts as an endocrine disruptor in humans and other animals and is linked to neurological problems, liver damage/abnormalities and may limit intellectual development in children – all of these effects are more pronounced when considering body burden of other persistent and ubiquitous organochlorides such as PCB and dioxins (see Longnecker, et. al., 1997). **Note:** The chemical industry likes to point out that though lab testing suggests DDT may be carcinogenic, epidemiological studies have not effectively borne this out in human populations. Endocrine disruption, liver damage and neurological effects are all conclusions made from human studies (which support lab analyses).
3. Insect resistance to DDT is well documented and shows up in as few as 4 generations of insects. Also, mosquitoes have adapted to avoid surfaces where DDT has been applied. Interestingly, the exact genetic/biochemical mechanism by which resistance occurs in mosquitoes is still not clearly understood so development of chemicals that address resistance are far in the future. (see Oaks, et. al., 1991; Penilla, et. al., 1998).
4. The effects of DDT in fish populations is well documented (see Burdick, 1964) and includes significant loss in reproduction, endocrine disruption and can even result in complete sex change for some species (see Mills, et. al., 2001, Colborn, et. al., 1993).
5. Ironically, the recent decision to remove the bald eagle from the endangered species list is directly related to the ban emplaced on DDT use in the United States. There now is little question that bald eagle populations were diminishing as a result of DDT uptake in the food chain (see Grier, 1982).
6. DDT persistence in the environment is well-documented. The Pine River in St. Louis, Michigan showed DDT levels in fish rose precipitously in resident fish between 1985 and 1997 even though production of the chemical had stopped in 1967 (see MDEQ

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reports and U.S. EPA Remedial Investigation OU1 Velsicol Superfund Site, St. Louis, MI).

If this science is sound, even moderate use of DDT in malaria-ravaged regions would be of short-term benefit only (due to mosquito resistance to the chemical), and would leave a legacy of human and environmental health problems for generations. However, a U.N. supported effort of DDT application potentially would mean millions of dollars for the petrochemical industry before resistance was detected.

More importantly, this is another example of the promotion of a narrow economic and political ideology without consideration of the decades of research contradicting it. The fact that Michael Chrichton is a vocal proponent of this emphasizes the fact that medical doctors are NOT trained as research scientists but as diagnosticians. He, therefore, lacks the training and credibility to promote any ideology antithesis to the plethora of research findings that exist in the peer-reviewed literature.

For our elected officials to aggressively oppose the work of scientists like Rachel Carson (such as Senator Coburn – R. Oklahoma) and draft and promote legislation that results in damage to human health and the environment in the face of peer-reviewed research is, in my opinion, criminal.

The response to the DDT promoters is simple: As fair-minded citizens, we will support the widespread, global use of DDT if we can be given peer-reviewed studies that show:

1. DDT does not bioaccumulate in a way that negatively impacts ecosystems and the global environment
2. DDT is not a persistent chemical in the environment and the human population
3. DDT does not have measurable, real (or potential) negative health effect in humans
4. DDT can be used as a long-term, effective weapon against malaria-carrying mosquitoes

Produce these studies in journals such as *Science*, *Environmental Health Perspectives*, *SETAC*, etc... and I will enthusiastically support the cause of Africa Fighting Malaria.

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