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## Chapter 10

# Field Development of Photooxidative Dyes as Insecticides

Lisa A. Lemke<sup>1</sup>, P. G. Koehler<sup>2</sup>, R. S. Patterson<sup>1</sup>, Mary B. Feger<sup>3</sup>, and Thomas Eickhoff<sup>3</sup>

<sup>1</sup>Insects Affecting Man and Animals Research Laboratory (IAMARL),  
Agricultural Research Service, U.S. Department of Agriculture, Gainesville, FL 32604

<sup>2</sup>Department of Entomology and Nematology, University of Florida,  
Gainesville, FL 32611

<sup>3</sup>Hilton Davis Chemical Company, 2235 Langdon Farm Road, Cincinnati, OH 45237

Erythrosin B (Synerid) a photooxidative dye has been shown to have insecticidal properties against adult house flies in small scale poultry tests conducted in FL. It provided up to 95% reduction of the adult house fly population in one of these tests. It is not, however, commercially satisfactory as a house fly larvicide. Erythrosin B, acridine red, and rose bengal have all been used experimentally to control mosquito larvae in small pools. Erythrosin B also shows promise as a single mound treatment for control of red imported fire ants (RIFA). It controlled RIFA colonies as effectively as Amdro through 56 day post-treatment. The photooxidative dyes are extremely safe to man and the environment. Erythrosin B has an LD<sub>50</sub> of 6,000-7,000 mg/kg of body weight.

Since this is a symposium on light-activated pesticides, it only seems right that the field evaluation and commercial development of these compounds be examined. The true test for any pesticide is how it performs under actual field conditions.

Various studies have shown that a number of insect species exhibit photooxidative toxic reactions when exposed to certain dyes. Dyes such as erythrosin B and rose bengal are effective control agents against the adult stage of the house fly (1-4), face fly (5), black imported fire ant (6), and boll weevil (7-8). Toxic reactions to these dyes in the larval stage of mosquitoes (9-11), house and face flies (12-14), yellow mealworms (15), cabbage butterflies (16), and black cutworms (17) have been observed in the laboratory.