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## Area-wide Suppression of Fire Ants

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### Abstract

Fire ants, *Solenopsis richteri* and *Solenopsis invicta*, infest over 129.5 million ha in the USA. Fire ants, with their tremendous reproduction, mobility, and ability to occupy a wide range of habitats make their eradication very difficult. In the USA, rapid and extensive spread of these stinging ants resulted in drastic attempts to eliminate or control the invasive pests including large-scale aerial applications of the acutely toxic contact insecticide heptachlor, and the applications of the less toxic mirex formulated into a bait. Unfortunately, mirex accumulated in the environment and its use was banned. However, mirex bait has served as a model for the development of currently available fire ant baits which contain more environmentally compatible active ingredients including metabolic inhibitors (MI) and insect growth regulators (IGR). A blend of MI and IGR baits have been used in recent areawide suppression demonstration projects in the USA. Eradication of fire ants from the USA is no longer pursued, but instead long-term, areawide fire ant management practices are evolving to integrate both chemical and biological controls. Two of the biological control agents are the fire ant pathogen *Thelohania solenopsae* and the fire ant decapitating phorid fly, *Pseudacteon tricuspis*. Introductions of *T. solenopsae* and *P. tricuspis* into red imported fire ant populations in the U.S. have spread and are self-sustaining. However, the degree of control by these biological control agents by themselves is insufficient especially in urbanized areas where the tolerance of fire ant stings is low. Perhaps the most compelling effect of the biocontrol introductions is the potential delay in re-infestation in areas cleared of fire ants by insecticides. Establishment of fire ant biological control in unmanaged lands could perhaps diminish sources of re-infestations. *T. solenopsae* infection in newly-mated queen has resulted in their poorer survivorship. Development of treatment thresholds using food lures to assess fire ant populations may further facilitate the maintenance of acceptable levels of fire ant control and the continued presence of fire ant biological control agents. Areawide suppression is one strategy of fire ant management that will continue to evolve as we implement improvements in both chemical and biological control methods.

**Key words:** Fire ants, biological control, area-wide suppression, control

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