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AREAWIDE SUPPRESSION OF FIRE ANT POPULATIONS IN PASTURES: PROJECT OVERVIEW

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The red imported fire ant was accidentally introduced into the United States without most of the biological control organisms that kill fire ants in their native South America. Because of their potent sting and large populations, fire ants cause serious medical and agricultural problems to people, animals, and equipment. Damage to pastures is especially difficult to manage because fire ants are expensive to control over the large acreage. Fire ants also have a severe ecological impact on ground-nesting birds and mammals, predators and parasites of pests, and other ants. Over the past decades, chemical baits and other products have been the only means to control fire ants. However, with the successful establishment of biocontrol agents in several US locations, an integrated approach to fire ant control is now possible.

In 2001, the USDA funded a 5-year project on areawide control of fire ants with an overall goal of maintaining low fire ant populations with a reduced need for bait toxicants. This goal can be accomplished by using available self-sustaining fire ant biological control agents in conjunction with the bait toxicants. This project aims to demonstrate practical, long-term control of fire ants over a large area using an integrated approach. Demonstration sites for this project will be selected in Florida, Mississippi, Oklahoma, South Carolina, and Texas to represent the different environments where fire ants occur in the U.S.

The protocol for the project on Areawide Suppression of Fire Ant Populations in Pastures was approved by the Technical Core Committee which includes the following members: Robert Faust (USDA-ARS, Maryland) David Williams, David Oi, Sanford Porter, Robert Vander Meer, Roberto Pereira (USDA-ARS, Florida); Doug Streett, James Vogt (USDA-ARS, Mississippi), Anne-Marie Callcott (USDA-APHIS, Mississippi), Phillip Koehler (University of Florida); Russell Wright, Wayne Smith (Oklahoma State University); Mac Horton, Tim Davis (Clemson University, South Carolina); Bastiaan Drees, and Charles Barr, (Texas A&M University).

In each state, 2 sites will be established in improved pastures, one in which the biological control agents will be established and a control site with no biocontrols. In MS, 2 sites will be established in an area infested with hybrid fire ants and 2 sites in black fire ant region. Each site will contain a 300-acre central area that will be treated with chemical fire ant baits and some peripheral acreage where biologicals will or will not be established. Application of the biocontrol agents in the peripheral area will serve to prevent, limit, or slow reinfestation of the chemically treated area. These biocontrol agents will be introduced using the inoculative approach that has been successful in other areas.

Biological controls to be used in this demonstration project are the microsporidium *Thelohania solenopsae* and the parasitic decapitating flies of the genus *Pseudacteon.* The phorid flies will be released at test sites over a 2-week period near disturbed fire ant mounds. *Thelohania solenopsae* will be added to active fire ant mounds as live, *T. solenopsae*-infected brood, (3 g/mound). The chemical bait used in this project is a 1:1 mixture of products containing hydramethylnon ("Amdro" or "Siege") and methoprene ("Extinguish"), used at a rate of 1.5 lbs/acre.

In the treated area, 20 1/8-acre circular plots will be established in high fire ant density areas, whereas 30 circular plots will be established in the peripheral areas. These plots will be used in monitoring fire ant activity (using hot dog baits), fire ant population (using the USDA population index and mound counts), and biodiversity (using pitfall traps). Presence of Phorid flies and *T. solenopsae* will also be monitored to determine the rate of spread of these biocontrol organisms over the experimental areas.

This project also contains economic and educational components. The economic component aims to examine the economic visibility of the integrated approach to fire ant control and cost/benefit impact of the proposed project. This analysis will look at the impact of fire ant infestations at the farm level, as well as project overall economic impact in cooperating states and US. The educational component will involve the preparation of informational material for distribution to the public, educational institutions, media outlets, etc. A brochure has been prepared explaining the project and was distributed through cattlemen's magazines and associations. A webpage (http://fireant.ifas.ufl.edu) is currently active and will be updated with new features, including video clips showing ant activities and biocontrol agents.

This areawide project is expected to generate several outcome such as: a) release and spread of biological controls, b) sustained fire ant control, c) lower livestock production costs, d) increased farmworker safety, e) reduced pesticide risk, f) restored ecological balance among native ants, birds, and wildlife, g) demonstration of economic benefits of fire ant management in large areas, and h) increased public knowledge and awareness of new technologies and management tools for fire ant control.