FY 2006-2007 Report on Progress

(September 1, 2006 – August 31, 2007)

Texas Imported Fire Ant Research And Management Project

Title of project: Applied Imported Fire Ant Research and Education Program

Principal investigator(s) and contact information: Bastiaan "Bart" M. Drees, Professor, Extension Entomologist, Thomas W. Fuchs, Professor and Extension IPM Coordinator , and Roger Gold, Professor

Lay Summary of Major Accomplishments:

Outcomes included: 1) development of new approaches and fire ant management technology; 2) design, implement, and evaluate demonstrations of new technology documenting resulting economic and environmental impact; and, 3) transfer technology through outreach education programs. This proposal provided support for all or part of a number of positions and personnel including B. Summerlin and L. Nelson (through R. Gold). This project has a strong record of attaining outside funding sources and collaborative efforts that include insecticide manufacturers (Valent U.S.A., Nix of America, BASF, and others), other state agencies (Auburn Univ. for eXtension, Texas Department of Agriculture for ant survey efforts) and national agencies (USDA-ARS for Area-wide Red Fire Ant Management Project and APHIS for phorid fly release and establishment efforts).

Applied research conducted by this project continues to provide unbiased scientific information to support the development and implementation of educational programs in Texas and the southern U.S. Current imported fire ant management information has been incorporated into educational publications, fact sheets, and result demonstration reports available from Texas Cooperative Extension (http://fireant.tamu.edu) and nationally as of April 2007 through the national eXtension initiative (http://eXtension.org/fire+ants). Several scientific journal articles and a book chapter are in preparation or have been submitted for publication.

New products and expanded registrations resulting from concepts, applied laboratory and field studies and promotional activities continue to improve current Integrated Pest Management (IPM) practices for red imported fire ants (IFA), making them more environmentally-sound and cost-effective. Siesta™ Fire Ant Bait containing metaflumazone, a new active ingredient from a new class of insecticides, was introduced by BASF in April 2007 after gaining EPA registration based, in part, using data from applied research efforts supported by this project. In January 2007, Ambrands released a new 'hopper blend' product to retail markets, Amdro® Fire Strike, based on data generated and concept promoted by this program. In late 2006, a 24(c) label was developed to allow for the 'skip-swath' application of Esteem® Fire Ant Bait (pyriproxifen, Valent U.S.A.) in pastureland that would reduce treatment cost, amount insecticide applied, and treatment labor time/cost. This special label, when issued by TDA, would also allow for its use as a hopper blend providing an alternative to mixing s-methoprene (Extinguish™) with hydramethylnon (Amdro® Pro).

Phorid fly species established by TCE in collaboration with USDA-ARS and USDA-APHIS are now established and spreading in Walker, Polk, Denton, Wise, Bexar, Orange, and Caldwell counties, potentially providing sustained IFA suppression using classical biological control. Spread has been monitored in Caldwell and Denton counties (25 and 4 miles from release site, respectively). Impact, however, remains to be documented. A summary of all phorid fly released in Texas has been developed for submission to the Southwester Entomologist for publication in a collaborative effort between the University of Texas and Texas Cooperative Extension.

Large scale treatment demonstrations continue to demonstrate benefits and new technology available for IFA suppression using IPM. The Area-wide Red Imported Fire Ant Management Project supported by the USDA-ARS is in the last year of funding support, but this effort was recognized by receiving two awards: 1) 2006 ARS Technology Transfer Award for superior efforts by the "Area-Wide Suppression of Fire Ant Populations in Pastures" Team (R. Brenner, A.-M. Callcott, B. Drees, R. M. Faust, P. Horton, P. Koehler, C. Lard, D. Oi, R. Pereira, S. Porter, D. Streett, S. Valles, R. Vander Meer, D. Williams, and R. Wright), South Atlantic Area; and, 2) 2006 Honorable Mention for Excellence in Technology Transfer, Federal Laboratory Consortium (FLC) USDA Agricultural Research Service, South Atlantic Area for "Area-wide Integrated Management of Invasive Fire Ants."

Technical Description of Progress on Individual Objectives:

Year 2 of 'Applied Imported Fire Ant Research and Education Program' (with T. Fuchs and R. Gold, $106,030/FY 2005-06) funds support B. Summerlin, Tech II, and 48 laboratory and field trials. Those conducted in 2005 and 2006 were reported in the 'Integrated pest Management Urban IPM Program' booklets posted on http://fireant.tamu.edu. The most recent, http://fireant.tamu.edu/research/projects/pdf/2006_summary_report.pdf, contains 18 reports of imported fire ant applied research/result demonstration efforts, with 9 co-authored by B. Drees along with collaborating Extension Agents and Extension Program Specialists. Evaluations of Arena® WDG, Arinix® (in cooperation with San Antonio's City Public Service Energy), Siesta™, Esteem® and other products are detailed in reports. Area- and Community-wide fire ant management efforts at Woodglen Community subdivision and Agnes Arnold Girl Scout Camp are also included. Results of these efforts have been shared with members of the Texas Cooperative Extension's Entomology Project Group by providing copies in booklet form and on CD.

A number of new projects field and laboratory were initiated in 2007, including: 1) assessment of dry fertilizer and Esteem® (pyriproxyfen) Fire Ant Bait blends applied to save a trip across a pasture by accomplishing both tasks simultaneously; 2) assessment of degradation of Arinix® over a 5-year period when aged under different conditions; 3) development of and field assessment of a "home remedy" of orange oil plus liquid soap for use as an ant mound drench; and, 4) evaluation of a plant extract, QRD, as an ant mound drench. Other projects are in the planning phase.

This year, some funding was provided to Dr. J. Reinert, TAES in Dallas, to collaboratively develop a new vacuum sampling device to help document imported fire ant foraging behavior in a manner that avoids many of the factors inherent to other sampling methods such as food lure and pitfall trap use. This method may allow a better understanding of fire ant foraging, their interactions with other ants, and ant bait retrieval.

We have completed Close-Out Report on the USDA-ARS Area-wide Red Imported Fire Ant (IFA) Management Project (2005 - 2006), Specific Cooperative Agreement 0500-00044-009-01S. Funding ($126,750 FY2006; $77,260 FY 2007, $46,400 FY2008) supports R. Puckett, Ext. Asst., and A. Calixto, Ext. Assoc. Final reports for this project are in preparation.

We acquired funding from eXtension for 'Taking the sting out of IFA' (K. Flanders, Alabama CES and B. Drees) for FY2006 ($65,915; $28,000 for TCE) and with P. Nester (TCE) and P. Beckley (LSU) for FY2007 ($49,932; $20,545 for TCE). The web site created through employment of half time Extension Assistant, Neal Lee, in Nov. 2006, was launched in April 2007 during the national Imported Fire Ant Research Conference, April 24-26, on http://eXtension.org/fire+ants. The Community of Practice (CoP) formed includes every IFA infested U.S. state. Frequently asked questions, basic information and management decision modules will be posted on http://eXtension.org.

The project, 'Imported Fire Ant Survey and Regulatory Activities of The Texas Department of Agriculture' (A. Bhatkar, TDA with TCE subcontract $12,500 FY2006, $15,000 FY 2007) supported IFA surveys (20 and 25 south and west counties in FY 2006 and FY 2007, respectively using TCE personnel receiving $500/county). Ant species identifications verified by the USDA-APHIS taxonomist document *S. invicta* in 14 of the 19 counties surveyed representing new county records. These counties are not currently under quarantine by the USDA-APHIS. Regulatory action by TDA and APHIS is pending.

Relevance to Achieving the Overarching Goals of the Texas Imported Fire Ant Research and Management Project (see RFP guidelines):

This project addressed this Plan's goal: to eliminate this imported fire ant as a major Texas' pest. Economic indicators being developed by Dr. C. Lard are helping document impact of this pest ant (see Drees and Lard 2006). New products, approaches and services provide new alternatives to consumers and professional pest management service providers.

Manuscripts Published/In Press/Submitted:

Drees, B. M. 2006. Fall time for fire ants. Lawn Care Professional. GEI Media, Cleveland, OH. Fall issue, p. 21-23.

Drees, B. M. and C. F. Lard. 2006. Imported fire ant: Economic impacts justifying integrated pest management programs in Proceedings, XV Congress International Union for the Study of Social Insects, July 30 - Aug. 5, Washington, D. C., p. 114-115.

Drees, B. M., and C. F. Lard. 2007. Justification for imported fire ant eradication or suppression programs in the context of integrated pest management *in* Proceedings of the International Pacific Invasive Ant Conference (IPIAC), Kona, Hawaii, May 22-25, 2007, p. 16 .

Flanders, K. and B. M. Drees. 2006. eXtension: Taking the sting out of fire ants, p. 74. in Conference Proceedings (L. C. 'Fudd' Graham, ed.), Annual Red Imported Fire Ant Conference, March 28-30, 2006, Mobile, AL. 153 pages.

Drees, B. M., S. B. Vinson, R. E Gold, M. E. Merchant, E. Brown, K. Engler, M. Keck, P. Nester, D. Kostroun, K. Flanders, F. Graham, D. Pollet, L. Hooper-Bui, P. Beckley, T. Davis, O. M. Horton, W. Gardner, K. Loftin, K. Vail, R. Wright, W. Smith, D. C. Thompson, J. Kabashima, B. Layton, P. Koehler, D. Oi, A-M. Callcott. 2006. Managing Imported Fire Ants in Urban Areas, B-6043. Texas Cooperative Extension, Texas A&M University, College Station, TX, 22 p.

Merchant, M., and B. M. Drees. 2000, revised 2002, 2006. The Texas two-Step method: Do-it-yourself fire ant control for homes and neighborhoods. L-5070 (revised). Texas A&M University, College Station, Texas. Leaflet.

Nester, P., and B. M. Drees . 2007. Aerial and ground insecticide application technology for large area imported fire ant treatment programs *in* Proceedings of the International Pacific Invasive Ant Conference (IPIAC), Kona, Hawaii, May 22-25, 2007, p. 33.

Tomberlin, J. K. and B. M. Drees. 2007 Poultry pest management. E-445. Texas Cooperative Extension, The Texas A&M University, College Station, TX, 19 pp. On http://tcebookstore.org. (contains imported fire ant control section)

Submitted article to the SW Entomologist: Drees, B. M., B. Summerlin and S. B. Vinson, "Foraging activity and temperature relationship for the red imported fire ant".

Submitted co-authored book chapter: David H. Oi and B. M. Drees, "Imported Fire Ant Case Study", Cambridge University Press IPM Textbook (Ted Radcliff and Bill Hutchison, Eds).

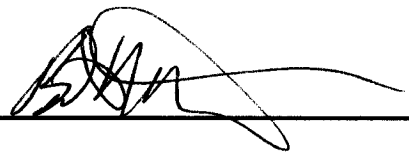
Submitted to SNA Research Conference: J. Reinert, J. McCoy, B. M. Drees, K. and J. Heitholt, "Fire Ant Management in Urban Landscapes with Broadcast Treatments"

Additional publication and mass media activities included: revised fact sheets FAPFS016, FAPFS021, FAPFS035 on http://fireant.tamu.edu; Developed TCE publication IFA management section for 'Poultry Pest Management' (with J. Tomberlin); interviewed by Austin-American Statesman, Lowe's, Wall Street Journal, Brisbane Courier, Antedote for Garden Tech, Prevention Magazine, PBS radio, Beaumont Enterprise. International activities included hosting Dr. Lou Lizhi, China, April 2-4, developing IFA eradication plans; traveling to Brisbane, AU, June 9-24, to assess IFA eradication program ongoing since 2001 and costing $175 million (AU).

Invited and Submitted Presentations/Posters Presented at Scientific/Technical Meetings/Conferences:

PI's made numerous presentations including: Bayer Environmental Science's Landscape Pest Management Summits, Jan. 25, 31; symposium, SW Branch meeting of the Entomological Society of America (ESA), Feb. 26-March 2; launch meeting for Valent USA for Esteem® fire ant bait; symposium (7 presentations) at the 2006 Nat. Conf. on Urban Entomology, May 21-24; paper for the 15th Congress for the International Union for the Study of Social Insects; and symposium on eXtension for the Annual Meeting of the ESA, Dec. 10-15. See Drees and Lard (2006, 2007) for citations of proceedings articles from presentations. In 2007, made presentation to Imported Fire Ant Conference in Gainesville, FL, April 24-26, entitled "eXtension Fire Ant Website Launch at http://extension.org" by B. M. Drees, K. Flanders and H. Ritchie-Holbrook. Traveled to China, June 14-30 at the invitation of the Plant Protection Institute, China Academy of Agricultural Sciences, to make presentation, "The red imported fire ant: biology, impact and management in Texas, U.S.A." in Beijing at the institute's headquarters, in Zhongshan University, Guangzhou, June 19, and in Nanning for the Plant Quarantine Station of Guangxi Province, June 22.

PI Signatures:



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Signature **Date**

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If this report is prepared by someone other than the Principal Investigator, please provide name and contact information:

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