Fire Ant UPDATE: News from the

Texas Applied Fire Ant Research and Education Program

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FIRE ANT KILLING PROTOZOA FOUND IN 120 TEXAS COUNTIES

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STEPHENVILLE - If imported fire ants dreamed - and who knows if they do or don't - then a tiny protozoa could be their worst nightmare.

Even better news: Texas A&M University System entomologists have completed a survey that detected the protozoa in fire ant colonies in approximately 120 of the 157 Texas counties where they have been surveyed.

Once a colony is infected, the protozoa debilitates the queen, the workers and even the larvae. The disease shortens their the ants' life spans and raises the mortality of sexual females.

The tiny microorganism may not eradicate the fire ants but it has the potential of changing it from a highly aggressive pest into one much less competitive with native species, said Dr. Forrest Mitchell, entomologist with the Texas Agricultural Experiment Station at Stephenville.

Now that the survey is complete, the next step is to grow the protozoa on culture mediums. If culturing is successful, the research might eventually yield a product that would introduce the protozoa into fire ant mounds in the form of a bait. Alternately, infected fire ants might be introduced into areas where the protozoa is not present.

But there are a lot of questions to be answered and problems to be solved first.

The first question, Mitchell said, is where did the protozoans come from?

Though there are several native species of fire ant, their stings pale compared to their more aggressive cousin, the red imported fire ant, which was accidentally introduced to the United States in the 1930s. Because it lacks natural predators here, the red imported fire ant has spread to all or portions of Florida, Georgia, South Carolina, Tennessee, Alabama, Mississippi, Arkansas, Texas and Oklahoma. The species has become very abundant, displacing many native ant species.

Scientists have long known that one of the pest's natural enemies in South America is Thelohania solenopsae, a microscopic organism related to the amoeba.

"It infects about 25 percent of the ants down there. It is one of the natural pathogens, but the degree of its importance is hard to access," Mitchell said.

The scientific community has been extremely cautious about introducing the protozoa in the United States, however, not knowing what effect it might have on the native ant species, such as harvester, carpenter and leaf-cutting ants, Mitchell said.

Because of these fears, studies of the South American protozoa were done in labs under controlled conditions. Then in 1998, an U.S. Department of Agriculture entomologist found a fire ant colony near Thorndale infested with the protozoa.

"Later, tests showed that the DNA of the Thorndale strain differed from the South American strain," Mitchell said.

The Texas A&M survey shows the protozoa has occurred naturally, without human intervention. Questions still remain, however, before Mitchell is comfortable with the idea of helping the protozoa propagate. It could be that the protozoa was in North America all along,

just waiting for the fire ant to be introduced as a host? Or, was the protozoa itself an emigre, hitching into the country with the South America fire ants? If it was an emigre, did the protozoa evolve so its DNA now looks different from that of the South American strain?

If the protozoa is native to North America, then its further introduction will not likely harm the native ant population. They are already adapted to it. If it's not native, helping it spread might not be a wise thing to do, Mitchell said.

These are crucial questions because ants play a critical role in the ecological balance. The predatory types kill and eat many other insects, both harmful and beneficial. Though small individually, collectively ants can make a huge impact. Worldwide, a figure for ants comprising 15 percent of all terrestrial animal biomass is not out of line.

"No one really knows for sure what percentage ants constitute of the animal biomass. But one thing is for certain. If you really want to disrupt the ecosystem, disrupt the ants," Mitchell said.

INTERSTATE COLLABORATIVE EFFORTS TO DEVELOP EDUCATIONAL PROGRAMS FOR FIRE ANT MANAGEMENT IN CATTLE PRODUCTION SYSTEMS

Kathy L. Flanders, Auburn University and Bastiaan M. Drees, Texas A&M University.

In the past year, the authors have worked together on developing educational programs on fire ant management in cattle operations. Programs included a workshop, an instructional DVD, a streaming video archive on the Internet, and a printed publication.

The workshop was held on April 15, 2003. County agents and cattlemen at three sites in Alabama were connected to each other via Internet videoconferencing. The training session for Alabama stakeholders was conducted by Drs. Bart Drees and Charles Barr from College Station, Texas. We had planned for the instructors to be connected with the Alabama groups via vidoconference. However, a power outage in College Station forced the instructors to narrate their PowerPoint Presentations via cell phone, while the actual presentations were broadcast from Auburn, Alabama. Despite the technical difficulties, the format allowed ample opportunity for interaction between the experts in Texas and the stakeholders in Alabama. Drs. Drees and Barr went to the studio of the Communications Department of Texas Cooperative Extension, and made the presentations again, so that they could be recorded. The result is a DVD containing two presentations, "Managing Fire Ants in Cattle Operations," and "Managing Fire Ants in Agriculture" (Note: This DVD is available to TCE faculty/staff from the Audio Visual Library as DVD 2673). The DVD was reproduced for distribution in Texas and in Alabama. In order to make the information more accessible, the communications department of the Alabama Cooperative Extension System archived the two videos as streaming video and posted them on the Internet. Copies of the DVD will be made available on request, or you can view the presentations at the following links:

Managing Fire Ants in Agriculture
http://www.aces.edu/extcomm/satellite/agriculture.wmv

Managing Fire Ants in Cattle Operations
http://www.aces.edu/extcomm/satellite/cattle.wmv

Circular ANR-1248, "Managing Fire Ants in Cattle Production Systems". A stand alone publication on managing fire ants in cattle operations was produced, and is now available as a joint publication of the Alabama Cooperative Extension System and Texas Cooperative

Extension. Reprints are available in Texas through the TCE Bookstore, http://tcebookstore.org, as **SP-196** at $2.25 per copy.

These educational programs are the latest collaborative efforts between the Alabama Cooperative Extension System and Texas Cooperative Extension. A fire ant video, Fire Ant Control Made Easy, was produced in Alabama, re-voiced in Texas for distribution there, translated into Spanish in Texas, and has now come full circle, back to Alabama as archived streaming video:

Control Fácil de las Hormigas Bravas: http://www.aces.edu/extcomm/satellite/ez_esp.wmv

IMPORTED FIRE ANT (IFA) QUARANTINE PROGRAM MANUAL - Richard L. Dunkle, Deputy Administrator, Plant Protection and Quarantine

A program manual for the IFA Quarantine is now available online at http://www.aphis.usda.gov/ppq/manuals/pdf_files/Fire_Ant.pdf. This represents the first revision of the manual since 1985 and reflects the considerable changes that have been made to the IFA Quarantine since that time. The authority for taking regulatory actions for IFA is contained in 7 CFR 301.81-1 through 301.81-10.

The manual is for use by state and Federal Regulatory Officials interested in preventing the artificial spread of IFA from infested to uninfected areas. The manual will prepare Regulatory Officials to:

… Perform accurate surveys for IFA along the leading edge of infestation
… Determine the interstate movement (entry) status of regulated and nonregulated articles
… Provide current treatment information and facilitate the movement of IFA-free nursery stock from regulated to non-regulated areas
… Take regulatory action when a detection of IFA is found

The manual was produced by the APHIS' PPQ Manuals Unit with assistance from the many APHIS and state personnel associated with the IFA Quarantine. While every attempt has been made to make the manual accurate and comprehensive, it is recognized that some parts of the manual will be more fully developed in future versions. The online availability of this manual will allow for changes to be made as the need arises while allowing for the complete and rapid access to this information by Regulatory Officials (also see: http://www.cphst.org).

PRODUCT UPDATES

- Safer® Brand to release “Fire Ant Control Kit” containing spinosad bait and d-limonene mound drench (see Press Release1, “SaferFireAntControlKitShellSheet.pdf”, and Press Release 2, “SaferTwo-StepFireAntPamphlet.pdf”), based on the approach developed by the Fire Ant Project : “An organic two-step method for imported fire ant control”, FAPFS039, 2003 rev., http://fireant.tamu.edu/materials/factsheets/039_revfinal.pdf

- Green Light® Company introduces OMRI listed fire ant control with Conserve® (spinosad) bait (see Press Release, “GreenLeafSpinosad.pdf”), approved for use in home gardens and other sites
- Syngenta has included use sites on the former Logic® product label on their revised

Award® product label, including use in horse pastures and non-bearing citrus.

IMPORTED FIRE ANTS IN THE NEWS

- "Orange County; Cities Fretful as Cutbacks Halt O.C.'s Fire Ant War" by Dave McKibben. Los Angeles Times. Los Angeles, Calif.: Mar 8, 2004. pg. B.1
  http://www.latimes.com

- "Group may take up ant offensive - Cuts to funding of eradication efforts may have given fire ants a hold in valley" by Benjamin Spillman
  http://www.thedesertsun.com/news/stories2004/local/20040223020859.shtml

- "New Zealand ant case exposes threat to Hawaii" by Jan TenBruggencate
  http://the.honoluluadvertiser.com/article/2004/Feb/23/ln/ln30a.html

IMPORTED FIRE ANT RESEARCH CONFERENCE SCHEDULED TO BE HELD IN BRISBANE, AUSTRALIA, Monday 23 - Wednesday 25 August 2004
See details: http://www.dpi.qld.gov.au/fireants/14091.html

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