

Operation Full Stop in Full Swing

When you think of agricultural research, you usually think of wheat fields, cattle ranches, or chicken flocks. But agricultural research can sometimes have a very urban focus. Such is the case with Operation Full Stop, a cooperative program spearheaded by the Agricultural Research Service. It's aimed at beating back the Formosan subterranean termite in New Orleans' famed French Quarter and elsewhere.

Formosan termites are exotic invaders from Asia believed to have entered the United States more than 50 years ago by stowing away in crates, pallets, and other packing materials aboard ships bringing supplies and troops back home from the Pacific Theater during and after World War II.

Spreading from the ports, Formosan termites began a subterranean colonization of the country. But they remained virtually unknown until the mid-1960s when their population appeared to explode. Today, they have infested parts of 11 states and are costing more than \$1 billion each year in damage, repairs, and control efforts.

Startlingly successful in its adaptation to the southern United States, this invasive species has become a special menace to the legendary French Quarter, threatening the neighborhood's historic buildings.

In 1998, Congress called on ARS to lead the effort to find a way to handle the Formosan termite and take immediate action to protect the landmark neighborhood.

ARS has always been a leader in areawide pest management research, and the agency has had significant success dealing with foreign invasive species. Not all invasive species are agricultural pests. But the same entomological expertise is needed to battle such invaders whether they live in the country or in the city. And based on the termites' biology and aggressive foraging behavior, an areawide strategy was clearly needed.

Another advantage ARS provided was a sophisticated research complex—already located in New Orleans. The Southern Regional Research Center offered a well-equipped base for scientists near one of the world's largest concentrations of this problem pest.

ARS and other members of the team, including Louisiana State University Agricultural Center, New Orleans Mosquito and Termite Control Board, University of Florida, and University of Hawaii (where Formosan termites are also a problem), immediately began to seek ways to halt the invasion. Other collaborators include Texas A&M University, Mississippi State University, and the University of Mississippi.

Fortunately, just as the program began, the pest control industry was introducing several new technologies to battle

native termites. For the first time, termite control was going on the offense—with baits and poisons designed to kill termites—instead of defense, with barriers to keep termites out of buildings and homes.

ARS began to adapt these new technologies into an area-wide approach against foreign termites. At the same time, fundamental research into the insect's biology and habits was also begun to develop new approaches to stopping the Formosan termite.

A unique aspect of Operation Full Stop is the way in which the research has been carried out. Usually, research starts in the laboratory, moves to field trials, and then eventually makes its way through technology transfer into the hands of users.

But Operation Full Stop has involved the public and local pest management professionals from day one. The termite emergency in the French Quarter required that some control measure be started right away. New technologies arising from fundamental research would be applied in the French Quarter as they emerged.

Areawide suppression in an urban area is very difficult. The French Quarter has 2,900 households, and every one of them has to be completely involved. This contrasts with traditional termite control methods, which have always been done house by house, structure by structure. But such piecemeal attacks do not work against the Formosan termite. So public education and outreach have been basic components of the project from the beginning—not after the research has been completed—because people need to know that conventional methods of control do not solve the Formosan termite problem.

And when you are talking about protecting a historic area from destruction, there can be no true “untreated control” area for comparison. We can only compare damage and termite numbers from year to year to confirm that we are making progress.

Education has another important role. We need to teach the public to recognize the Formosan termite when it spreads to a new area so that control can be taken before the insect becomes entrenched. That's a critical part for communities to play.

But in the 5 short years that Operation Full Stop has been under way, we have made significant progress. What we are learning in the French Quarter is already helping to create techniques to deal with the Formosan termite throughout the Southeast. You can read about the success of the team's research on pages 4-8 of this issue of *Agricultural Research*. And if you live where Formosan termites may be a threat, you may want to check out further details at www.ars.usda.gov/is/fullstop.

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