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# New Paint Wipes Out Infestation in a Village

By JEAN FRIEDMAN-RUDOVSKY

CAMIRI, Bolivia — It happened just like that. One day Barbara Saavedra's modest adobe home, deep in southeastern Bolivia, turned white — and miraculously, for the first time ever, bug-free. "The vinchuca were just gone," said Ms. Saavedra, 39, a member of Bolivia's indigenous Guarani people.

The vinchuca are Triatomine, or "kissing" bugs — large biting insects that live in the thatched roofs and mud walls of traditional homes like hers. They transmit a parasite that causes the incurable, and often fatal, [Chagas disease](#).

The Chaco, the dry-forest region surrounding Ms. Saavedra's village, is the epicenter of a worldwide Chagas epidemic affecting up to 10 million people, including one million in the United States. Ms. Saavedra's family, and most of her neighbors, often slept outside to escape the bug's nightly blood feedings.

Deliverance came in an unlikely form: On that August day, her home was slathered with a high-tech paint that kills disease-carrying pests like the kissing bug. Over the past decade, approximately 7,000 houses in the Chaco region have been covered with the paint, known as Inesfly. By most estimates, the vinchuca vanish within a week, and no houses have suffered repeat infestations, although some, like Ms. Saavedra's, have been repainted as a precaution. The bug-killing paint has reduced infestation rates in her area from as high as 90 percent to nearly zero.

"It's astounding," said Dr. João Carlos Pinto Dias, a leading expert in Chagas disease at the Oswaldo Cruz Institute in Brazil. His studies found Inesfly effective for two years in real-life conditions. Standard [insecticide](#) application lasts only six months under the most ideal conditions and can dissipate within a week in harsh environments like the Chaco.

Developed by a small Spanish company called Inesba, the paint has not yet been fully evaluated by the World Health Organization; until it is, public health officials in many countries will not

incorporate it into disease-control programs. But experimental efforts against a range of pests in South America, Mexico and Africa have produced promising results.

“The paint is changing the way we understand vector-transmitted disease and its prevention,” said Javier Lucientes Curdi, a parasitologist at the University of Zaragoza in Spain, who has been evaluating the paint’s ability to reduce transmission of dengue and [sleeping sickness](#) in Africa.

Inesfly comprises “microcapsules” of [pesticides](#) within a water-based paint. The active ingredients are released slowly over time, extending the paint’s effectiveness for years. The microcapsules also hold insect growth regulators, which kill insect eggs and their young. (Insecticides do not kill bugs in their early life stages.)

The microcapsules also act as the paint’s safety mechanism. Because the pesticides and insect growth regulators are released from the paint gradually, in tiny amounts, it is much less toxic than the fumigation on which many countries rely for pest control. There have been no reports or evidence of environmental or health complications related to Inesfly.

In Africa, researchers are testing the paint against *Anopheles gambiae*, the mosquito that transmits the parasite causing [malaria](#). Mosquitoes pose even greater challenges than a bug like the vinchuca because they don’t make their homes in walls, are virtually omnipresent and reproduce with greater speed.

But studies in the lab and in the field have shown that use of the paint can reduce mosquito populations over long periods of time much more effectively than traditional pesticide application methods. In experiments conducted in the village of Ladji, Benin, W.H.O. researchers found that Inesfly, applied to cement huts, [had a kill rate of 100 percent for three months](#) against mosquito populations. The paint remained 90 percent to 93 percent effective after nine months.

The researchers plan now to paint another village to see whether fewer mosquitoes translates into fewer malaria infections.

“The product is without a doubt a great hope for Africa,” said Dr. Santiago Mas-[Coma](#), president of the European Federation of Parasitologists, who is coordinating the trials. “Just thinking about what could be painted — homes, restaurants, theaters, airports — gives us a glimpse of its possible impact.”

Government officials in Mexico have used Inesfly to eliminate a variety of dangerous household pests in central Mexico. In one [2007 study](#), for example, the paint eradicated scorpions and kissing

bugs in about 100 homes in the village of Los Epazotes near the city of Tejupilco over a six-month period.

In another [study](#), from mid-2009 to mid-2010, in the community of Venustiano Carranza in the Tabasco region, infestations of dengue-transmitting *Aedes aegypti* mosquitoes were reduced to just 1 percent of homes from 20 percent after application of the paint. For 60 years, fumigation had failed to eliminate these pests, said Jorge Méndez Galván, former head of vector-transmitted disease for the Mexican government and now a researcher for the Federico Gómez Children's Hospital of Mexico, who conducted the studies.

In regions where he's conducted his studies, he added, residents come to recognize painted homes as healthier spaces than houses that have not been painted.

The paint may help protect livestock, as well. Dr. Lucientes, of the University of Zaragoza, has been coordinating research in Spain to test the paint's potential against animal pathogens. He said that initial findings suggest that painting barns, stalls, pens or fencing help prevent the spread of [salmonella](#) or animal trypanosomiasis.

Still, insecticidal paint is not a panacea. It can't be used cover thatched walls, and many homes in malaria-stricken areas are made of thatch. Where pests have already become resistant to pesticides, the paint is ineffective. And even where the paint is effective, houses must be repainted — particularly if mosquitoes are the target.

Whatever its drawbacks, Inesfly may soon be available in the United States. The company is working toward approval by the Environmental Protection Agency and hopes to market the paint here as a tool to control household pests like cockroaches or ants.

Back in Bolivia, Ms. Saavedra acknowledges that until the painters arrived at her adobe home, she didn't even know the vinchuca caused Chagas disease. She's never been tested for the infection; without the money for expensive, long-term treatment, she sees no point in knowing.

But Ms. Saavedra smiles as she looks at her youngest son, born after the first house-painting. "I know he's safe," she said.