



Eradication programmes rely on sterile flies

Flesh-eating pests unleashed

LOLLY MERRELL

AN ACCIDENT in a lab that sterilises screw-worm flies has led to an outbreak of the flesh-eating larvae in cattle, costing at least \$2 million to clean up.

The lab in the Chiapas region of south-east Mexico produces more than 150 million sterile screw-worm flies per week as part of the US Department of Agriculture's screw worm eradication programme. Until the incident the programme had eliminated the devastating parasite *Cochliomyia hominivorax* from Mexico, Guatemala, Belize and most of Panama.

Technicians at the plant irradiate male screw-worm pupae to render them sterile. They then release the mature flies into infected areas in an effort to disrupt the life cycle of the fly. But according to Craig Fedchock of the USDA's Animal and Plant Health Inspection Service (APHIS), "wires were crossed" during routine maintenance on one of the facility's machines. "The irradiator was rendered ineffective and non-sterile flies were released," Fedchock says.

In early February, aircraft unknowingly dispersed at least 4 million of the fertile flies throughout Chiapas and Panama. Officials at the production plant noticed the system wasn't working several days after it had been serviced, and immediately issued warnings that an outbreak was imminent. Some 500 cattle in southern Mexico and Panama suffered infestations.

The accident is the first of its kind since APHIS established its programme in Mexico in 1972, and

has created an expensive hurdle to the agency's goal of eradicating screw worm from Panama by the end of this year. While most of the country is now free of the pest, APHIS is struggling with a sliver of isolated jungle on the Colombian border, where the terrain and the presence of paramilitary guerrillas has made surveillance a dangerous challenge.

Until the incident in Chiapas, the USDA's programme had been a shining example of "sterile insect technology" (SIT), which the

agency developed in 1956 to battle the screw worm. The parasite infects animals and humans by laying eggs around open wounds. These then hatch and feed on living flesh before pupating and turning into adult flies.

The insect was once endemic throughout the Americas. In the US it cost millions of dollars in lost livestock until 1982, when SIT finally rid the country of the parasite. The US and Mexican governments teamed up in 1972 to apply SIT throughout Mexico, successfully eliminating screw worm from most of the country. This bolstered cattle production, and helped establish Mexico as one of the world's largest cattle exporters.

SIT has since been applied around the world, most recently on the Tanzanian island of Zanzibar, where the UN has successfully used it to eradicate the tsetse fly. But efforts to bring SIT to mainland Africa have met resistance from many scientists (*New Scientist*, 2 March 2002, p 15). They argue that while the fairly stable infrastructure in Mexico and Central America has allowed teams to monitor the movement of the screw worm with ease, scientists in Africa face hostile terrain, civil unrest and poor funding. Plus there are 22 different species of tsetse. "In some parts of the region it might work," says Fedchock, "but the key thing is to first establish an infrastructure."

Although APHIS responded efficiently to the outbreak, thanks to more than 50 years of experience with the pest, the episode was costly. The agency had to set up roadblocks and livestock checkpoints across southern Mexico and Panama, and began releasing twice the normal eradication load of sterile flies to quell the spread of the outbreak. There were no more reports of infected animals after the second week in March.

"Yes, we had an accident, a pretty bad one, but we have the technique down to such a degree that we know how to handle an occurrence," says Fedchock. ●

ERADICATING THE SCREW WORM

Before the accident, the US Department of Agriculture had eliminated the parasite from Mexico, Guatemala, Belize and most of Panama

