Overkilling the Insect Enemy

An OTA report says massive spraying of pesticides was misguided—and faults aid agencies for operating in crisis mode

WHEN A PLAGUE OF LOCUSTS and their relatives, the grasshoppers, swept across northwest Africa in the late 1980s, it caught most people by surprise. It was the largest outbreak of locusts and grasshoppers in 50 years, and few African nations had the trained manpower or money to fight the swarms. Their response was to cry disaster. And international aid agencies were quick to respond—with $275 million and a fleet of aircraft that helped bomb crops with millions of liters of pesticides. When the locusts disappeared last year, the Agency for International Development (AID) and other agencies claimed victory.

Now a report from the Office of Technology Assessment (OTA) called "A Plague of Locusts" says the international campaign may have been wasted effort. There's no evidence it did more than fan fears and steep the continent in pesticides, some banned in the United States. "Overall, the results of the locust and grasshopper control were disappointing," the study concludes. "Massive insecticide spraying in a crisis atmosphere is costly in dollar terms; it tends to be inefficient in the short-term, ineffective in the medium-term, and misses the roots of problems in the long-term."

And if all that spraying wasn't of much benefit, then the cost side of the ledger seems even more depressing. Two planes returning from a spraying mission were hit by air-to-ground missiles fired by guerrillas in the Western Sahara. One plane crashed, killing the crew of five, who had been on contract for AID. In addition, pesticides killed 30 sheep and wiped out bee colonies in Tunisia. And at least half the people surveyed by OTA reported either that workers were exposed to toxic doses of pesticides or that there had been some adverse environmental effects.

Those dangers prompted OTA to ask whether the U.S. investment of $59 million was worth it. The study avoids a direct answer, but says there's no hard evidence spraying made a difference and the "cost-effectiveness of control has not been demonstrated." The study also suggests that the justification for the entire operation may have been flawed because locusts aren't as big a threat as has been thought.

How real a plague? *An immature (in star) form of the desert locust* (Schistocerca gregaria).

For example, damage from the recent "plague" was localized—accounting for less than 1% of the weight of crops produced in the nine African countries most affected by locusts in 1986. In that year alone, says the report, $40 million was spent to fight locusts that threatened crops worth only $46 million. The report cites a study by TAMS Consultants, Inc., and the Consortium for International Crop Protection that concludes farmers have more to fear from weeds and birds than from all insects in Africa, which cause about 10 to 20% of the damage to crops on average. And even when locusts swarm, they are actually minor contributors to that figure.

If the locust isn't such a big deal, why were international agencies so quick on the spray-gun trigger? "Many people who feel the locust is a major threat have some vested interest in locust control," says Dean L. Haynes, a consultant on the report who is a Michigan State University entomologist. The international aid agencies may have been under pressure from African government officials to supply them with pesticides, Haynes says, in part because pesticides are a valuable commodity that can be used on economically important crops other than those threatened by the locusts.

Haynes adds that there's an entrenched infrastructure that finds it easier to spray than to try other methods. Dale Bottrell, a University of Maryland entomologist who worked on the report, agrees there's pressure to use pesticides, even when the goal is to save small-scale farmers' subsistence crops instead of big cash crops: "It's quick, the impact's visual—you've got dead locusts—but it doesn't necessarily mean you're helping out the small farmer."

But even if the locusts and grasshoppers had been the plague they were cracked up to be, there's little evidence that pesticides did them in. Some researchers, Haynes included, say it was the dry weather and hurricanes, not the chemical assault, that thinned the locust legions.

Not surprisingly, representatives of AID and the U.N. Food and Agriculture Organization, which also backed the spraying, have difficulty swallowing conclusions like that. AID entomologist Allan Showler, for example, calls the report "unfair." AID did advocate less enthusiastic use of insecticides, particularly compounds banned in the United States, such as dieldrin and fenitrothion, Showler says. The final decision, he adds, was out of AID hands—and in those of the individual African nations.

Showler also knocks some of the report's conclusions as unrealistic. In place of crisis management, the report advocates a long-term preventative strategy to control the insect population before it explodes—a strategy that might include integrated pest management, training local workers to control indigenous pests, and targeting early spraying at locust breeding areas. That's fine in theory, Showler says, but it's much more difficult to raise funds for long-term planning and ongoing pest management than for fighting off a plague. "The problem with all of this is you can give out warnings and nobody does anything about it until they're invaded," says Showler.

But the people at OTA who drew up the report see this as excuse-mongering. "Unless we take a different approach now, AID is going to be saying the same thing in 10 to 20 years when the problem crops up again," says Phyllis N. Windle, project director of the OTA report. "Unless AID has the technical capacity to independently evaluate those disaster reports coming from individual countries, then we're always going to find ourselves in this reactive mode instead of being proactive." ■ ANN GIBBONS