

# Arming US troops with insect-protective gear

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The U.S. Department of Agriculture (USDA) and the U.S. Department of Defense (DOD) have joined forces to create effective barriers and gear that help shield deployed soldiers from disease-causing insects.

Scientists at the Agricultural Research Service (ARS) Center for Medical, Agricultural and Veterinary Entomology (CMAVE) in Gainesville, Fla., are evaluating insecticides, testing pesticide application equipment, and treating military tents, camouflage screening and sun awnings with long-lasting residual pesticides. The research is a component of a USDA-DOD initiative called the Deployed War-Fighter Protection Research Program. ARS is USDA's principal intramural scientific research agency.

Biting insects and arthropods can transmit pathogens that cause devastating diseases such as malaria, dengue fever, [yellow fever](#) and Japanese encephalitis (spread by mosquitoes), or leishmaniasis (spread by sand flies infected with *Leishmania* parasites). Such illnesses are a particular problem for susceptible U.S. troops deployed to countries where these diseases are common.

Entomologist Seth Britch, who works in CMAVE's Mosquito and Fly Research Unit and is also a captain in the U.S. Army Reserve, found that camouflage netting treated with a specially formulated insecticide effectively reduces mosquito populations and provides long-lasting protection for military personnel. Desert-pattern netting material was sprayed, allowed to dry, packed and shipped to Tallil Air Force Base in Iraq, where it was stored for five months, tested and then shipped back

to CMAVE for analysis. Almost 300 days after it had been treated, the material was still successful in controlling mosquitoes. Treated netting also provided protection against sand flies and filth flies.

In another experiment, scientists evaluated ultra-low-volume pesticide spray equipment, chemicals and application techniques in Kenya against sand flies. Britch, CMAVE center director Kenneth Linthicum, and collaborators from the Navy Entomology Center of Excellence at Jacksonville Naval Air Station in Florida and the U.S. Army Medical Research Unit in Nairobi, Kenya, tested two pesticide sprayers and two pesticides to kill sand fly species comparable to those found in Iraq and Afghanistan. DOD equipment and one of the pesticides tested performed well against sand flies.

Linthicum, Britch and CMAVE entomologist Daniel Kline are also part of a team that evaluates repellents, treatment methods and spray equipment in locations like California's Coachella Valley desert, which looks similar ecologically and environmentally to deserts in the Middle East. Researchers work to ensure that all application techniques and equipment are effective before being used by military personnel deployed to hot, arid environments.

**More information:** Read more about this research in the November/December 2012 issue of *Agricultural Research* magazine. [www.ars.usda.gov/is/AR/archive...ov12/insects1112.htm](http://www.ars.usda.gov/is/AR/archive...ov12/insects1112.htm)

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