New rearing system may aid sterile insect technique against mosquitoes

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This shows a rack unit. (Left) The front view of the rack structure is fully stacked with trays in tilted position. (Center) This shows the detail of the endless screw jack system and its hand wheel controller. (Right) The back view shows the bottom frame of the rack with the plastic curtain, the metallic slide and the basket collector. Credit: © 2012 Entomological Society of America

Scientists at the United Nations Food and Agriculture Organization and the International Atomic Energy Agency have developed a larval rearing unit based on a tray and rack system that is expected to be able to successfully rear rear 140,000-175,000 adult mosquitoes per rack.

The requirement for efficient mosquito mass-rearing technology has been one of the major obstacles preventing the large scale application of the Sterile Insect Technique (SIT) against mosquitoes.

However, according to a new article in the next issue of the *Journal of Medical Entomology*, scientists at the Untited Nations Food and

Agriculture Organization (FAO) and the International Atomic Energy Agency (IAEA) have developed a larval rearing unit based on the use of a stainless steel rack that is expected to be able to successfully rear 140,000–175,000 adult mosquitoes per rack.

In "A New Larval Tray and Rack System for Improved Mosquito Mass Rearing" the authors report that the new mechanized rearing unit is simple to handle, maintains minimal water temperature variation and negligible water evaporation, and allows normal larval development. The mosquito mass-rearing tray was designed to provide a large surface area of shallow water that would closely mimic natural breeding sites, and the trays stack into a dedicated rack structure which fill and drain easily. Furthermore, the low amount of labor required to operate the system also reduces costs.

"Our larval rearing unit could enhance any mosquito control strategy in which large-scale releases of mosquitoes are needed to suppress or replace natural populations," said lead author Fabrizio Balestrino.

More information: entsoc.org/Pubs/Periodicals/JME

Provided by Entomological Society of America

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