



OMNI-DIRECTIONAL FAY PRINCE TRAP MODEL 112

Instructions

Background information

The Omni-Directional Fay Prince Trap, Model 112 is a daytime trap which is quite specific for *Aedes aegypti* and *Aedes albopictus* adults of both sexes; it will capture gravid and nulliparous females. The prototype of the Model 112 was the Fay-Prince trap (Fay and Prince, 1970), a unit that was specifically designed and field tested for the collection of *Ae. aegypti* by scientists from the Technical Development Laboratories of the Communicable Disease Center, DHHS. The design was based on the attraction of contrasting gloss black and white panels. With the arrival of *Ae. albopictus*, a spate of new trap designs were developed and published.



Figure 1. Omni-directional Fay Prince trap with collection cup.

In 1992 and 1993, scientists from the U. S. Department of Agriculture (Jensen et al., 1994) compared a number of new and old designs for their ability to collect both *Ae. aegypti* and *Ae. albopictus*. The trap capturing the most females of both species was a unit consisting of 2 Fay-Prince traps mounted back-to-back and modified so that females arriving from any direction could be captured. The design of the Omni-Directional Fay Prince Trap, Model 112 is based on these results.

Operational Details

Trap Location

Trap location is critical with the Omni-Directional Fay Prince Trap, Model 112. As *Ae. aegypti* nor *Ae. albopictus* are powerful flyers, probably not flying more than a few hundred feet per day, traps must be located in the proximity of suspected breeding areas. Because *Ae. aegypti* is a semi domestic mosquito, breeding almost exclusively in artificial containers in and around human habitation, when collecting this species, traps should be placed to the rear or between buildings where collections of such containers are likely to be found. Areas protected from the wind are to be preferred and placing the trap about 3 feet above the ground is ideal. When collecting around tire piles, locations near vegetation are preferred over locations out in the open and in full sunlight.

Electrical

Omni-Directional Fay Prince Trap, Model 112 requires ca. 0.185 Amp per hour to operate at 6.0-6.3 volts DC. Four D size flashlight batteries (preferably alkaline) in series will provide power for a minimum of 1 day of operation. A better source of power are sealed gel-cell batteries as they do not leak and do not require the care in charging that nicad batteries do. The trap can be operated at any voltage between 5 and 12 DC; however, voltages greater than ca. 8 DC cause damage to specimens as the faster spinning motor begins to act as a blender. A 50 Ω /10 wt resistor (available from us at no charge) in series with the motor will reduce 12 VDC to approximately 6 volts. You can estimate the maximum run time for a fully charged and new battery by dividing the amp hr rating by the consumption (ca. 0.185 Amps/Hr); older batteries, even though fully charged will provide substantially less time. A battery capacity of 4 to 6 Amp Hrs is a good size for this trap.

As DC motors reverse their direction of rotation with voltage polarity changes, the battery leads are coded: the red or copper lead goes to the (+) and the black or tinned lead goes to the () terminals on the battery. The battery clips are removable on most versions to allow connection to the spade terminals found on many sealed, rechargeable batteries.

Dry Ice

The use of CO₂ significantly enhances the catch and makes the location of the trap less critical. The results of the USDA tests were based on the use of 2 kg of dry ice per trap day. The beverage cooler that was supplied with your trap is a convenient way to dispense CO₂. The insulation slows the rate of sublimation and by hanging the trap from the hook below the cooler, the CO₂ is released at the correct location, right above the trap.

Air-Actuated Gate System

Air-actuated gate system operation (if so equipped) is simple. Take care not to bend the counter balance rods with careless handling or storage. Each time the trap is set up, start and stop the trap several times to make sure the gates open and close without binding. If the thin gates get jammed in the closed position, knock them free with a pencil etc., dropped down through the top of the trap. DO NOT unjamb by applying excessive torque to the counter balance rods.

Useful References

Control of Dengue Vector Topics # 2. Available from Vector Biology and Control Division, Bureau of Tropical Diseases, Center for Disease Control, DHHS, Atlanta, GA 30333.

Fay, R. W. and W. H. Prince. 1970. A modified visual trap for *Aedes aegypti*. Mosquito News 30: 20-23.

Freier, J. E. and D. B. Francy. 1991. A duplex cone trap for the collection of adult *Aedes albopictus*. J. Am. Mosq. Control Assoc. 7: 73-79.

Jensen, T., O. R. Willis, T. Fukuda, and D. R. Barnard. 1994. Comparison of Bi-directional Fay, Omni-directional, CDC, and duplex cone traps for sampling adult *Aedes albopictus* and *Aedes aegypti* in north Florida. J. Am. Mosq. Control Assoc. 10(1): 74-78.

Service, M. W. 1977. Mosquito Ecology Field Sampling Methods. John Wiley and Sons. New York, New York.