NEW JERSEY STANDARD LIGHT TRAP — MODEL 1112

Instructions

Background

Experience has shown that light traps are an efficient and productive means of collecting mosquitoes, both in consideration of the numbers of individuals captured and the diversity of species represented. The prototype for the **Model 1112** was designed about 40 years ago by mosquito control personnel in the State of New Jersey; the trap was designed for mosquito abatement operations and arbovirus survey purposes. We have attempted to produce an efficient, convenient, and durable trap through the use of the highest quality materials available and thoughtful design. The following instructions, suggestions, and references should enable you to make full use of your light trap.

Adult surveys are most frequently conducted because adult mosquitoes are easier to locate and identify than are the larvae. The surveys indicate the various species present and their relative abundance. Additional information obtained from light traps useful to mosquito control personnel allow: (1) determining and documenting the need for a control program, (2) assessing the best times and places to use space spray equipment, (3) determining if a disease potential exists, and (4) evaluation of control measures previously applied. Light trap data are also a source of reports to supervisors and the public concerning the extent of the problem and results of control operations. A seldom appreciated advantage of light trap collections is that males are also taken; because males emerge first, in some instances, their presence in collections is a useful indicator that a new brood is forthcoming. Light traps are also useful to arbovirus survey workers, for example, a principal vector of Western Equine Encephalitis, *Culex tarsalis,* as well as other vector species, can be collected in large numbers by our traps that employ incandescent light sources.

Trap Location

Proper location of light traps is particularly important. In general, the best catches are made where cover is good and the humidity is relatively high. Locations a short distance into the margins of wooded areas and swamps are very desirable; traps over open water or in open pasture are typically less productive. Traps should be suspended 5-6 feet above the ground, preferably 30 feet or more from buildings. To be avoided are areas near other sources of artificial light, sites exposed to strong winds, places near buildings housing animals, or those areas exposed to industrial fumes and smoke. For mosquito control operations, one or more traps should be located between known breeding sources and inhabited areas; others are best located in critical spots such as near residential and recreational sites. A single trap usually reflects mosquito flight activity within a few yards of its location. A trap may represent an area as large as a block, but this information is not always reliable, and a sufficient number of traps must be utilized to assure a representative sample. The actual number required will depend upon a number of factors in-

cluding the degree of accuracy required, the manpower available, size of area involved, etc. If a site fails to produce the expected number of mosquitoes, judging from collections in other traps in the area, the trap is relocated. Sometimes a shift of only a few yards makes a considerable difference in the number of mosquitoes attracted.

Trapping schedules

Light traps are operated on a regularly scheduled basis of 1 to 7 nights per week; 4 nights' collection will usually give as valid an index as 7 nights per week. Therefore, trap collections should be made on 4 consecutive nights, such as Monday through Thursday of each week. The traps are turned on just before dark and off again just after daylight. The **Photoswitch** (P/N 1.68) and the **Seven-Day Timer** (P/N 1.90) are optionally available for this trap; they greatly reduces the manpower required to operate a series of traps.

Light trap collections of many species tend to fluctuate on a 4-week cycle corresponding with the phases of the moon. The best catches are usually made during the dark of the moon or on overcast nights. Rainfall during the night generally does not reduce the catch; in fact, intermittent showers appear to enhance the catch somewhat. Studies have shown that a 1-2 pound piece of dry ice in an insulated container suspended immediately above the trap substantially increases the number and diversity of species of mosquitoes caught. Additionally, the use of the dry ice-baited trap is less restricted as to placement and moonlight conditions. Also, if the trap is set late in the afternoon, diurnal species such as *Aedes aegypti* can be captured. Wide differences have been noted in the reaction of different species of mosquitoes to visible light. Some species are attracted to light traps in great numbers while others will only rarely be taken even though they are plentiful in the area. This is particularly true in the case of the common malaria mosquito, *Anopheles quadrimaculatus*, which is seldom taken in significant numbers in light traps and the yellow fever mosquito, *Ae. aegypti*. With the use of other survey techniques, e.g., landing collections, resting station collections, and dry ice-baited traps, these species can be monitored. A new trap designed specifically for the collection of *Ae. aegypti* and *Ae. albopictus* is now available from us; known as the **Omni-Directional Fay/Prince Trap, Model 112**, this trap is based on field research by CDC and U. S. Department of Agriculture scientists. A related trap, the **UV-Fay/ Prince Trap, Model 812**, was developed by Dr. K. O. Kloter of the New Orleans Mosquito Control Board to contain a 4-wt blacklight tube making it attractive to *Ae. aegypti* and *Culex quinquefasciatus*, a vector of St. Louis Encephalitis

Operational Details

Electrical

The **Model 1112**, with or without the **Photoswitch**, requires 110 VAC, 50-60 Hz, single phase for operation. The standard bulb is a 25-wt *rough-service* bulb (P/N 3.40). The fan motor draws only 4 watts.

Please note the following for safety-

The trap should be connected to a 3-conductor circuit which is protected by a ground-fault detection circuit breaker for safe operation. Installation must conform to all local codes.

Useful References

American Cyanamid Company. 1972. Modern Mosquito Control, 3rd ed. American Cyanamid Co., Princeton, NJ 30 pp.

Carpenter, S. J. and W. J. LaCasse. 1975. Mosquitoes of North America (North of Mexico). Univ. Calif. Press, Berkeley, CA 360 pp.

Centers for Disease Control (CDC), Public Health Service, U.S. Department of Health and Human Services. 1977. Mosquitoes of Public Health Importance and Their Control. (HEW Publication No. (CDC) 77-8140) 55 pp.

Louisiana Mosquito Control Assoc. 1983. Mosquito Control Training Manual. Louisiana Mosquito Control Assoc., 6601 Lakeshore Dr., New Orleans, LA 70126 ($10.00).

Mulhern, T. D. A Manual for Mosquito Control Personnel. Calif Mosq. Cont. Assoc., Visalia, CA 190 PP.

Service, M. W. 1977. Mosquito Ecology - Field Sampling Methods.

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