Accurate Pouring of Concentrated Liquid Insecticide Without Spillage or Waste [1]

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Concentrated insecticides offer one specific advantage over ready-to-use insecticides. They have a relatively small volume and are therefore highly desirable where there is a small amount of storage space or where cost of shipping this material is a significant factor. But, since these materials are highly concentrated their toxicity can be a rapid acting poison to the user and can cause excessive environmental contamination when accidentally splashed or spilled. Similarly, inaccurate measuring (adding more or less than the required amount) may lead not only to unnecessary danger for non-target organisms but may also fail to control the target insect.

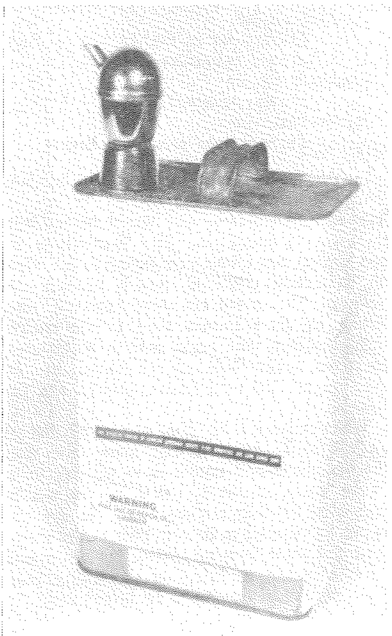

Fig. 1.—Accurate pouring of concentrated liquid insecticide without spillage or waste—McDonald.

Typically, the concentrated insecticide is mixed with diluents such as water, diesel fuel, etc. The challenge is not in measuring the diluent but in measuring the concentrate with accuracy and without spillage.

Pouring liquid insecticide concentrate into a graduated cylinder from a 1- or 5-gallon container is very difficult. An exact measure of one ounce, for example, is indeed difficult due to residue insecticide which clings to the walls of the measuring flask. Therefore, the more times we use a given measuring flask for a single "batch" of insecticide the more we have increased our opportunity for spillage, waste, contamination, and error.

Recent studies and tests have shown that all of these difficulties can be eliminated by inserting a 1-ounce liquor measure pouring device into the opening of the can of liquid concentrate as shown in Figure 1. Additional gaskets and adapters are not required. These pourers consistently deliver almost exactly one ounce every time. We have noted a volume range of 28 cc to 30.5 cc when using this pourer but without any residue since there is no measuring flask. A pourer for a smaller volume may be used if a fraction of an ounce of concentrate is required.

The use of a liquor pourer fitted to the mouth of a can of liquid concentrate has been found to be a clean, quick, and highly accurate means of measuring small quantities of liquid insecticide without waste, spillage, or contamination of the area.

[1] The opinions and assertions contained herein are the private ones of the author and are not to be construed as official or as reflecting the views of the Navy Department or the Naval Service at large.

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Larval Habitats of Mosquitoes in Jefferson County, Kentucky [1]

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An understanding of larval habitats is essential for successful control of mosquitoes. A variety of both temporary and permanent breeding habitats for mosquitoes exists in Jefferson County, Kentucky.

Collections of larvae from these habitats are shown in Table 1. These larvae were collected

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TABLE 1.—Larval habitats of mosquitoes in Jefferson County, Kentucky

	Sewage treatment plants	Catch basins	Roadside ditches	Ponds	Swamps	Culverts	Cisterns	Tin cans and containers *	Pumping stations	Fountains	Basements	Tree wells	Septic tanks	Swimming pool	Tree root hole	Broken water line	Margins of flowing streams
Uranotaenia sapphirina					R												
Toxorhynchites signifera								X									
Psorophora ferox			R		R												
Psophora discolor			R														
Psorophora cyanescens			R	R	R												
Psorophora confinnis	R		C	I	I	X			X								
Psorophora ciliata			I	R													
Orthopodomyia signifera	R																
Culiseta inornata			I	R	R												
Culex territans			I	I	I			X									
Culex tarsalis			R														
Culex restuans	C	A	A	C	C	X	X	X	X			X	X	X		X	
Culex pipiens	A	A	A	C	C	X		X	X	X	X	X	X	X	X		
Anopheles quadrimaculatus			I	C				X	X								
Anopheles punctipennis	R		C	I	C			X		X	X				X		X
Aedes vexans		R	C	C	C	X		X	X						X		
Aedes trivittatus					R												
Aedes triseriatus			R		R			X									
Aedes sticticus			R	R	R												
Aedes canadensis			I	I	I	X											

* various sizes, shapes and materials (e.g. buckets, cardboard boxes, drums)

A-abundant, great numbers of larvae collected in this habitat
C-common, larvae frequently collected
I-infrequent, only a few occurrences of larvae
R-rare, only a single or double occurrence of larvae
X-species present, too few collections from this habitat to determine species frequency

between 1966 and 1969 by the Louisville-Jefferson County Board of Health. Collections were made on a regular basis as part of the larval and adult surveying of the Jefferson County area. Details of the operation of the Board of Health in mosquito control have been reported by Covell (1968).

Of the mosquitoes in Jefferson County, *Culex pipiens* uses the widest variety of potential sites open to the ovipositing female. This species is followed by *Culex restuans* and *Aedes vexans* in a diversity of habitats. The potential for habitat diversity of these three species appears to be related to population size, for *C. pipiens, C. restuans,* and *A. vexans* are the most abundant species in collections of larvae and adults.

Sewage treatment plant lagoons are of particular interest as mosquito breeding sites. Because they offer excellent breeding sites, these man-made lagoons often become a nuisance and public health hazard. Over 4,600 larvae were collected from the facilities within sewage treatment plants in Jefferson County between 1966 and 1969. The most abundant species was *C. pipiens. C. restuans* was relatively common. Larvae of *Anopheles punctipennis, Orthopodomyia signifera* and *Psorophora confinnis* made rare appearances.

In addition to the habitats listed in Table 1, several species of mosquitoes were found breeding in other situations. Collections from discarded tires contained specimens of *A. triseriatus, A. vexans, C. pipiens, C. restuans,* and *C. territans.* An abandoned automobile served as a breeding site for *C. pipiens* and *C. restuans.* Larvae of *C. pipiens* were also found in discarded refrigerators, bath tubs, and wash racks. In an uncovered rowboat, *C. pipiens, C. restuans,* and *C. territans* were collected. Larvae of *A. punctipennis* were found in a variety of open container-type areas such as tin cans and cardboard boxes. Few of these breeding sites produced great numbers of mosquito larvae. This was similar to the findings of Young and Christopher (1944): as in their study, the results emphasize the difference between habitat preference and habitat tolerance.

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A New Distribution Record for the Mosquito Iridescent Virus (MIV) [1]

D. W. Hall [2] and R. E. Lowe [3]

The first report of an iridescent virus being pathogenic to mosquitoes was made by Clark *et al.* (1965). They observed larvae of the black salt-marsh mosquito, *Aedes taeniorhynchus* (Wied.) collected near Vero Beach, Florida, to exhibit an iridescent orange color and to be infected with a cytoplasmic, noninclusion virus which they designated as mosquito iridescent virus (MIV). Shortly thereafter, Weiser (1965) reported a similar virus that produced a greenish opalescence in larvae of *Aedes annulipes* (Meigen) and *Aedes cantans* (Meigen) collected in southwestern Bohemia, Czechoslovakia. Chapman *et al.* (1966) found MIV-infected *A. taeniorhynchus* on the coast of Louisiana and reported color variation of the diseased larvae from brownish orange to blue-green. It has since been shown that this variation is due to two different isolates of the virus, and they have been designated as the R (regular) MIV and the T (turquoise) MIV respectively (Matta and Lowe, 1970).

A. taeniorhynchus larvae collected June 17, 1969, from North Key, an island off the west coast of Florida, near Cedar Key, were examined and two were found to be infected with RMIV. Three additional collections were made from North Key and one from a second island, Atsena Otie Key, during the summer to determine the incidence of infection. The number of patently infected larvae in these collections is shown in Table I, and these results are comparable to

Table 1.—Incidence of RMIV in *Aedes taeniorhynchus* larvae

Collection site	Date	No. Examined	No. Infected
North Key	7/12	4439	5
North Key	7/17	1338	2
North Key	8/8	3551	1
Atsena Otie Key	8/8	3500	4
Totals		12,828	12

[1] This study was conducted at the Insects Affecting Man and Animals Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Gainesville, Florida 32601; Florida Agricultural Experiment Station Journal Series No. 4011.

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