

The results obtained in the present experiment, however, showed that darkness did not have any inhibitory effect on the development of the *C. incidens* larvae. Statistical analyses indicated that there was no significant difference in effect between larvae reared in the dark and those "controls" which were reared in normal laboratory illumination. This obviously does not agree with the conclusions of Frost and her associates. The present writer believes that the inhibitory effect of darkness which was theorized by these workers might, in fact, have been the result of other factors, such as a deficiency of food, a disturbing formation of pellicle, or other environmental features.

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FEATURES AND BENEFITS OF BULK FLIT MLO HANDLING¹

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Virginia does not support any mosquito control research; therefore, it is essential that we attend the American Mosquito Control Association's meetings and other meetings to keep up with the latest developments. For several years, we heard about the virtues of Flit MLO as a mosquito larvicide, and we decided that we should determine if its use was suitable to conditions in Virginia.

In 1967, we obtained a drum of Flit MLO and tested it under varying conditions in several types of mosquito breeding places. It was found that Flit MLO, as claimed, did a good job of killing mosquito larvae and, at the recommended rates, it did not kill fish nor burn vegetation. There appeared to be one problem which resulted from one of its main assets. Would it be possible to train men to apply the reduced rates recommended? If they applied Flit MLO at the rates at which they generally applied fuel oil, the cost would be exorbitant.

The following year, one crew was given Flit MLO to use for the entire season. This exercise not only proved that a good job of killing mosquito larvae could be done, but also proved that men could be trained with the proper equipment to make application at the recommended rates. Hence, it was concluded that Flit MLO was a good larvicide and could be applied properly. Now it was time to investigate the cost.

When purchased in drum lots, the cost was high; but if bulk delivery could be taken, the cost per gallon could be reduced. Table 1 shows the comparative costs of drum vs. bulk. These figures are based on 10,000 gallons per year usage.

Another item of cost to be considered is that of drum handling. Table 2 shows these figures.

By adding the saving on bulk buying and the saving in drum handling, it can be seen that there is a total saving of \$2,854 on 10,000 gallons. Hence, it was determined that by purchasing Flit MLO in bulk, a substantial saving could be realized. Now, how much would it cost to provide bulk storage?

¹ Presented at the 28th Annual Meeting of the American Mosquito Control Association, Miami Beach, April 23-26, 1972.

TABLE I.—Comparative costs—drums vs. bulk.

Base Case—10,000 Gal./Yr. Usage			
Drums—FTL (75 drums or 4145 gallons)		Bulk—10,000 gallons	
F.O.B. Bayonne, N. J.	\$.7000/gal.	F.O.B. Bayonne, N. J.	\$.4000/gal.
Frt. Bayonne—Norfolk	+ .0854	Frt. Bayonne—Norfolk	+ .0880
	<u>.7854</u>		<u>\$.4880/gal.</u>
Less Quantity Discount	— .0800		
Used Drum Value	— .0400		
	<u>\$.6654/gal.</u>		
	\$.6654 per gal. del'd. in drums to Norfolk		
	.4880 per gal. del'd. in bulk to Norfolk		
	<u>\$.1774 per gal.—net savings, bulk vs. drum purchases</u>		

Therefore, based on 10,000 gallon usage per year, a savings of 10,000 x \$.1774 per gallon, or \$1,774.00, is available by bulk purchases over drum purchases.

It was found that a simple above-ground 10,000-gallon storage tank could be installed at a cost of \$2,000. An underground tank of the same capacity would cost \$2,400. Hence, it can be seen that one year's savings would more than pay for the cost of installing storage facilities.

In considering bulk storage of Flit MLO, there are other items which should be considered. No special tanks or special pumps are needed, as the product is noncorrosive.

Test results indicate that Flit MLO may be stored in bulk for long periods of time (6 months to 1½ years) without appreciably affecting its effectiveness. These evaluations also include determinations on the product that was subjected to freeze/thaw cycles with similar results.

Care should be taken to eliminate free water from bulk handling and dispensing equipment. Small amounts of water due to tank "sweating" and high humidity do not cause adverse effects. However, gross contamination in the magnitude of 5 percent or greater may noticeably reduce the larvicidal activity. Free laboratory service is available from the supplier to determine the presence of water in the event that contamination is suspected.

Flit MLO, as stated above, is noncorrosive and has very low acute oral and acute dermal tox-

icity and, therefore, is safe to handle. Its flash point is 270° F as compared to 165° F for Diesel fuel and, therefore, it is not a severe fire hazard.

In Virginia, we have established three bulk storage stations: one at Virginia Beach-Lynnhaven Mosquito Control Commission's yard, one at the Kempsville-Bayside yard, and one in York County. Smaller commissions who may use less than car-load lots get their material from one of these stations, thereby saving considerable over their cost if they purchased in drums.

We believe that Flit MLO is a good larvicide and by developing the bulk purchasing plan, we have reduced the cost significantly.

VIABILITY OF MOSQUITO EGGS PRODUCED BY FEMALE MOSQUITOES DENIED OVIPOSITING SITES¹

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The opinions and assertions contained herein are the private ones of the authors 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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While carrying out experiments with colonized mosquitoes it is frequently necessary to have large numbers of mosquitoes of the same age

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TABLE 2.—Drum handling costs.

\$6.00/drum is industry average for drum handling. Includes: Unloading truck, storage, unloading of drums, product left in drum (2-3 gal.), and ordering.

10,000 gallons in 55-gallon drums=180 drums
 180x\$6=\$1080/year in drum handling costs