to stage 6, the pre-hatch stage (Poinar and Gyrisco 1962), after 24 days. Approximately, 855 eggs were laid. A positive identification of the nematode has not yet been made but will be published elsewhere together with further observations on the nematodes' biology by the senior author and Dr. B. Ebsary, Biosystematics Unit, Canada Agriculture, Ottawa.

ACKNOWLEDGMENTS. This research was carried out as part of a biting fly control program funded by the townships of Wabush and Labrador City. We wish to thank Prof. L. T. Nielsen for his assistance with the mosquito collection and identification in 1981 and J. Harding and J. Barr for excellent assistance in the laboratory at R.U.V.P.

References Cited

Ellis, R. A. and H. C. Chapman. 1980. Mermithid parasites of Canadian anophelines. Mosq. News 40:115–116.

Petersen, J. J. 1980. Chapter 8, pp. 85–97. *In* Pathogens of medically important arthropods. WHO Bull. Supp. Vol. 58. Eds. D. W. Roberts and J. M. Castillo.

Poinar, G. O. Jr. and G. P. Gyrisco. 1962. Studies on the bionomics of *Hexamermis arvalis* Poinar and Gyrisco, a mermithid parasite of the alfalfa weevil, *Hypera postica* (Gyllenhal). J. Insect Pathol. 4:469–483.

Wood, D. M., P. T. Dang and R. A. Ellis. 1979. The insects and arachnids of Canada. Part 6. The mosquitoes of Canada Diptera: Culicidae. Agriculture Canada, Ottawa: 390 pp.

A NOMOGRAPH FOR RAPID DETERMINATION OF GROUND ULV ADULTICIDING COSTS

W. R. OPP, S. G. BREELAND AND J. A. MULRENNAN, JR.

Department of Health and Rehabilitative Services, Office of Entomology, P.O. Box 210, Jacksonville, FL 32231

Among the 50 mosquito control districts receiving state matching funds in Florida, 272 vehicle-mounted ULV machines were operated in fiscal year 1979–80 (October 1, 1979–September 30, 1980) to apply adulticides to 20,058,782 acres at an average cost of 0.12 cents per acre. [This figure includes chemicals, labor, vehicle maintenance and operational costs.] On an acreage basis, the ground application of adulticides made up 79.0% of temporary mosquito control measures employed by state supported districts and counties. Other temporary measures included aerial adulticiding 19.2%, ground larviciding 0.4%, and aerial larviciding 1.4%. On a cost basis, ground adulticiding accounted for 33.9% of expenditures for all temporary control ($2,344,001 of $6,915,140).

Directors of mosquito control districts must make frequent judgments on the most cost-effective ground adulticiding system from those available in terms of budget, effectiveness, public acceptance and environmental considerations. Often, unscheduled operations necessitated by explosive mosquito populations or vector-borne disease activity require immediate, on-the-spot decisions. Also, rapid and unpredictable changes in insecticide availability, prices, and observed effectiveness may precipitate modification of even routine insecticide application procedures.

In any case, in making judgments, decisions or recommendations, directors usually deal in cost-per-mile when projecting ground application costs for a given insecticide. When flow rate, vehicle speed, and ground application rate are used together with the cost of the chemical, all factors necessary to determine operational costs are known.

In administering state matching funds and providing technical assistance to mosquito control districts, the Mosquito Control Section of the Office of Entomology must also make very close estimates of comparative costs of ground adulticiding with competitive products on a cost-per-mile basis. To meet this need, the senior author has developed a nomograph (Fig. 1) incorporating the linear relationships of the variables. With only a straight edge, the user may make an immediate approximation of the cost-per-mile of an insecticide at a given flow rate, vehicle speed, ground application rate and price per gallon. All calculations are made on the basis of a 300 ft. swath width.

This note presents the nomograph and describes its use with our expectation that it will find wide application among mosquito control workers who employ vehicle-mounted ground ULV units in mosquito adulticiding operations.

A full page copy of the nomograph will be mailed to those requesting reprints of this article.

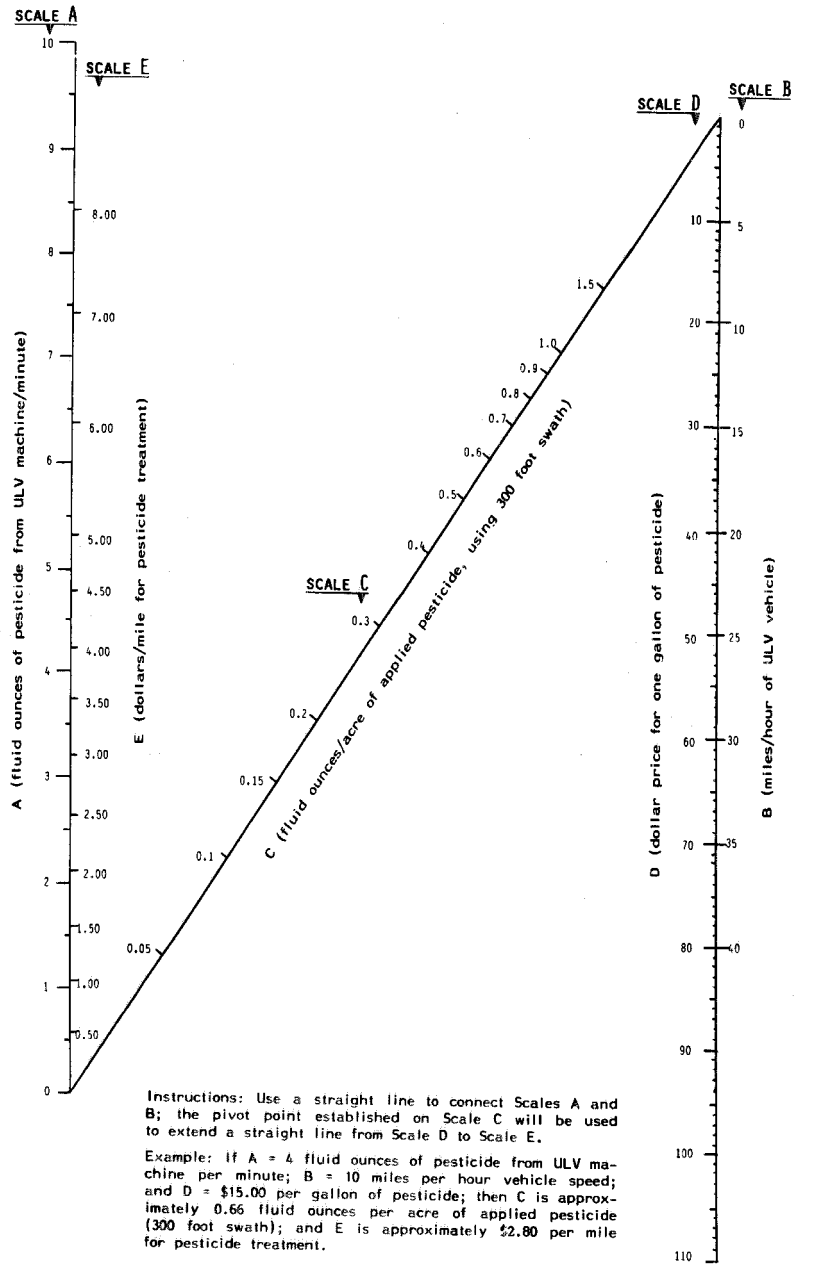

Fig. 1. Nomograph showing comparative costs of insecticides applied by ground ULV equipment.