TRENDS IN MOSQUITO CONTROL, WINNIPEG, MANITOBA, CANADA

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Two events of consequence have occurred in the Greater Winnipeg Mosquito Abatement District, of 250 square miles, and with a population of 420,000.

1. A working association with the University of Manitoba, Department of Entomology, was arranged, in 1957. 2. Preseason mosquito control has become an important part of our operations over the last ten years.

A Grant was made by the Mosquito District in 1957 to the University of Manitoba under which a graduate student was employed under the supervision of Professor A. J. Thorsteinson, Head of the Department of Entomology.

This project has two main aims: 1. To investigate the problems of mosquito control in Greater Winnipeg, in the interests of economy and efficiency, and suggest control measures. 2. To evaluate the results of such control work in a systematic manner.

The first of such evaluations by the Department of Entomology was their report of the successful results obtained by pre-season application of one pound DDT per acre on 7,928 acres of bush and swamp land.

The following is a part of the report presented by Mr. D. Smith, B.S.A.

"During the summer of 1957 a continuous survey of the Greater Winnipeg area was carried out by the Department of Entomology, with the object of evaluating the effectiveness of pre-season treatment for the past two years.

"The above-normal rainfall in June made this an excellent year for such an evaluation.

"In the winter of 1955–1956, 564 acres of bush were treated by plane with one pound DDT per acre, using 10 percent DDT tobacco stem granules. No breeding occurred in the treated area during the summer of 1956.

"To determine the long lasting effectiveness of this type of treatment over a period of two years, 177 acres was left untreated in the 1956–1957 winter. No breeding was noted until July 8th, when light breeding was observed.

"In the winter of 1956–1957, 6,117 acres were treated by plane on bush areas using one pound DDT per acre in 10 percent DDT tobacco stem granules. No breeding was observed despite above-normal rains in June. In contrast to this, untreated areas were breeding freely, and had to be treated several times during 1957.

"Adult populations were determined by means of four mosquito light traps. Peak activity occurred on July 12, probably related to heavy rain in June, followed by excessive heat in July.

"The maximum number of female mosquitoes caught in one trap on one night was 436: the average per trap from June 14 to September 16 was 40. The largest flights of mosquitoes occurred during July and August. Adult activity was negligible during May, June and September."

Pre-season control starts in October with ground equipment, followed in November with the plane. The Piper Cub plane has a 72-gallon tank for liquids, and a hopper that can take 300 pounds of granules. It operates on wheels, or on skis for snow. By entering into a 2-year contract with Teal Air Ltd., rent for the plane is reasonable at 20 cents per acre for spray work, and 40 cents per acre to apply granules.

In winter, truck loads of granules supply the plane close to the scene of operations. The snowfall of 99.5 inches in the winter of 1955–1956 was no problem in taking off and landing.

Tobacco stem granules are now in short supply as a carrier for DDT, so other forms of carrier granules are being tried. Of these, 20 percent DDT vermiculite, No.

4 grade, appears to be preferable from the point of view of economy, cost per acre and absorptive capacity of the carrier.

Considerable saving could be effected if one treatment every two years would prevent breeding. To test this idea, 1000 acres of marsh are being treated with 1½ pounds DDT per acre this winter.

The growth of pre-season control may be judged by comparing the figures on acreage treated in the winters 1955–56 and 1956–57 (table 1).

RESULT OF PRE-SEASON CONTROL. In 1957, for the first time on record, fogging was not necessary in May or June to kill adult mosquitoes. This was probably due to the preseason application of DDT by granule and spray, which prevented breeding on 7928 acres of wet land. Men and machinery were thus released to control other areas which were breeding in the usual way from April 17.

TABLE 1.—Acreage treated in pre-season control work

Method	Winter of 1955–56	Winter of 1956–57
From the air	564 acres	6117 acres
From the ground	1357 acres	1811 acres
Total	1921 acres	7928 acres

MOSQUITO CONTROL HIGHLIGHTS FROM THE STATES

MARYLAND

Maryland has just completed its second season of operation under the 1956 appropriation which established a state-wide program of support for mosquito control activities.

A highlight of the year was the completion of our Eastern Shore Headquarters Building. This building of cinder block construction, built at a cost of $40,000.00 provides office space for our Eastern Shore Headquarters personnel, a shop for the maintenance of equipment, storage space for insecticides and a number of garages for spray equipment. It is located on State property and serves as a center for supervising mosquito control activities for the Eastern Shore region. We believe maintenance costs on equipment will be reduced considerably by having our own maintenance shop.

We continue to divide our control program into a temporary control and a permanent control program for administrative purposes. The temporary control continues to be largely an attack on the adult mosquito to give our people a chance to enjoy their porches and gardens in the early evening hours. This year 197 communities participated in our spray program, as compared with 82 last year. This increased load required the adding of three additional spray machines to our State-owned equipment. This equipment was operated in two ways; by rental to the community for local operation, or by crews furnished by the State. Securing good temporary help continues to be a problem.

June and July were rather dry and control was satisfactory in most places. About the middle of August the rains began and extensive breeding resulted. In our tidewater areas *Aedes sollicitans* poured out of the marshes in such numbers that with equipment operating night and day we were able to give only limited relief. This situation continued until cooler weather resulted in an abatement of breeding.

We do not have a large enough program to do much larviciding. In two areas of the State we carried on a little larvicide work using insecticides in the granular form. We reduced the larval population