

# PAPERS AND PROCEEDINGS OF THE ANNUAL MEETING

OF THE AMERICAN MOSQUITO CONTROL ASSOCIATION HELD  
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FLORIDA ANTI-MOSQUITO ASSOCIATION  
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## AERIAL APPLICATION OF GRANULAR INSECTICIDES IN SOUTHEASTERN PENNSYLVANIA

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The use of granular insecticides applied from an airplane in two different types of areas was tried out in 1952 in Pennsylvania.

**TYPE ONE:** On about 600 acres of fresh water marshes along Darby Creek between southwest Philadelphia and Chester, Pennsylvania, in Tinicum Township. This large block of marshland had been a heavy mosquito breeder because of sewage pollution. The high vegetation which grew up on the marshes after July 1, consisting of reeds and tall grass, cattails, etc., made it impractical to use liquid sprays which were effective earlier than July 1, but which were caught and held by the rapid growth of vegetation so that only about 15% to 30% of the liquid insecticides heretofore used would get down into the water to act as a larvicide.

The first application of granular insecticide was made in early July and was followed at intervals of about three to four weeks in August and September, a total of three applications being made. The material used for the first of these three applications was either 15% or 10% Rothane or DDD furnished by Rohm and Haas Company of Bristol, Pennsylvania, and incorporated in the tobacco dust furnished by the Tobacco By-Products and Chemical Corporation of Richmond, Virginia. The preparation of the dust was carried out by the latter company. The second and third applications were carried

out with 10% DDT incorporated in the tobacco dust by the same companies.

The change was made largely because of technical difficulties in manufacturing under excessively hot summer conditions. Application was made by the LeHava Air Services of Philadelphia, Pennsylvania, with an experienced pilot in a specially modified biplane.

**RESULTS:** The results proved conclusively that virtually 100% of the granular material used would penetrate through practically any kind of tall vegetation to give effective control as a larvicide at the rate of application of approximately one pound per acre of DDT, using 7 to 10 pounds of dust into which DDT had been incorporated, remaining effective up to four weeks under normal conditions. There did not seem to be any serious fish killing with the use of either DDD or DDT in the quantities used, up to one pound per acre.

Although the cost would probably be somewhat higher than the use of liquid sprays, from an acreage basis, the fact that practically 100% of the material reached the water surface under the vegetation would more than compensate for the difference in cost.

It is felt that quantities of from one-quarter to one-half pound per acre of DDT in this dust would be as effective as one pound per acre of the liquid spray.

As part of this material was furnished

free for experimental purposes by the companies mentioned above, the exact costs are not available.

**TYPE TWO:** A long narrow strip of the abandoned Schuylkill Canal approximately 100 feet wide, including banks of the canal, and 35 miles long, owned by the Com-

monwealth of Pennsylvania, between a point west of Norristown and extending through Phoenixville, Pottstown, Reading and as far as Hamburg, Pennsylvania, was dusted four times with the same materials as mentioned above and with the same general results.

## IMPROVING AERIAL APPLICATIONS<sup>1</sup>

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The use of pelletized or granular insecticides offers possibilities of improving aerial applications for the control of mosquito larvae from the standpoint of both effectiveness and economy.

**A. Effectiveness:** 1. Wherever mosquito producing waters have vegetative cover above them much better penetration and consequently better control may be obtained with pellet-borne insecticides.

**Economy:** 1. The small amount of drift makes possible the application of such insecticides from much greater heights and hence with greater safety than when applied as dusts or sprays. Such qualities make practical the use of light planes costing but a small fraction of the price of large planes. Their operating expenses are also much lower. In Arkansas the total operating expenses have been but one-fifth to one-quarter the cost of the larger planes.

When two pounds per acre are applied and where scattered fields are to be treated, a light plane in 4 to 5 hours will cover approximately twice as much territory as the larger planes in one hour, thus reducing by one-half the cost of application.

2. If there is any movement of the

water, strips of the insecticide in granular bentonite will do as well as complete coverage. Twenty-foot to 30-foot strips applied 67 feet apart in rice fields that were in the process of being flooded gave excellent control.

There is also some evidence that striping is effective in stagnant water.

3. Work now under way at the Arkansas Experiment Station indicates that less expensive and perhaps better methods of preparing such insecticides will soon be available.

4. Let's get away from the idea that any thing under 10 acres should be treated with ground equipment. If the area to be treated can be found from the air, a light plane can go there, do the treating, and return in approximately the time required to get the equipment there in a light truck.

5. Because of their non-drifting qualities granular insecticides may be successfully applied during periods of greater air movement than dusts or sprays. As a result, the application of such insecticides can be continued more hours per day. This enables operators to be less likely to get behind with their work and makes more efficient use of the time of the pilot and air plane.

<sup>1</sup> Journal Series Paper 1086, Univ. of Arkansas. Published with the approval of the director of the Arkansas Agricultural Experiment Station.