

GRANULAR PESTICIDES IN CALIFORNIA MOSQUITO CONTROL

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The use of granular pesticides has become more or less a routine method of larval mosquito control in many of the mosquito abatement agencies of California. Other agencies have, from time to time, experimented with their use and in many cases have found the granulars to be extremely effective for specialized situations in mosquito control. The use of pelleted or granulated insecticides for mosquito control purposes is not an entirely new development. Dr. F. E. Whitehead (1) reported in 1950 at the Chicago meeting of this association on the use of pellet-borne insecticides for rice field mosquito control. Others have reported use of these materials in subsequent years (2), (3), (4).

Basically the carriers for the toxicants have been bentonite and diatomaceous earth. Bentonite has, in most cases, apparently been the most satisfactory material. No use of vegetable carriers such

as spent tobacco stems has been used in the west, principally due to their scarcity. In fact great difficulty has been experienced by some of the chemical companies in California in obtaining adequate supplies of the carrier materials at prices within the scope of mosquito control budgets. This past season (1955) has seen a marked improvement in this matter. In previous years granulars have been supplied from 15-60 mesh size with the 15-20 mesh appearing to be the best for mosquito control. Uniformity of particle size has been a problem as has the dust from the finest portions of any particular material. These problems are being solved rapidly as granulars are being developed for other purposes, notably fertilizer combinations.

At first (1951) only toxaphene was available as a granular. As the use and testing has advanced, more and more toxicants

have become available. Some of these have been DDT, DDT-dieldrin, dieldrin, heptachlor, malathion and parathion. There must be, in time, a decision made as to which toxicant will, in all cases, give the desired kill. This is necessary for reasons of economy. As mosquito resistance to the chlorinated hydrocarbons has advanced in California a shift to the phosphate insecticide toxicants has occurred. In the 1955 season by far the greater majority of granulars used by mosquito abatement agencies were either malathion or parathion.

Actual experience with the granulars for mosquito control in California has been varied. Results have not always been consistent. In general it can be stated that where sufficient amounts of toxicants have been applied results have been satisfactory. Some agencies still expect granulars to kill mosquito larvae at dosage rates far less than usually applied by other larviciding methods. Good results can not be expected under these circumstances.

The number of mosquito abatement agencies which employed the use of granulars during this past season (1955) was considerably less than in former years. Why this is so is not known. The fact that the 1955 season was comparatively light in mosquito problems in California may have contributed to this situation. Also in the past many districts had used the granular pesticides only experimentally,

often with poor results. Nevertheless, the agencies which used these pesticides on a regular control basis had satisfactory results. A total of eight mosquito control agencies in California reported the use of granulars for 1955. About 25,000 pounds of granulars were used by these agencies in their control programs. Below is listed certain information as reported by these districts.

From the results reported it can be seen that, in general, satisfactory kill of mosquito larvae was obtained. As stated previously, use of the granulars has been somewhat restricted to special situations. Only two agencies consistently use granulars in their control programs. Continued use of them will be made by these agencies for they find these materials well suited for their particular jobs.

Literature Cited

1. WHITEHEAD, F. E. Rice field mosquito control by pellet-borne insecticides. Bull. 511, 1951. Agricultural Experiment Station, Fayetteville, Arkansas.
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3. WASHBURN, G. EDWIN. Experience with granular insecticides in the western United States. 41st Proceedings of New Jersey Mosquito Extermination Association, 1954.
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GRANULAR PESTICIDE RESULTS—1955

District	Material	Method	Dosage per acre	Species	Control
Turlock MAD	Malathion	hand	0.5 lb.	<i>Aedes nigromaculis</i> + <i>Culex tarsalis</i>	good
Sacramento-Yolo MAD	Malathion	hand	0.5	same	poor
San Joaquin MAD	Malathion	air	0.35	same	good
Kern MAD	Malathion	hand & air	0.5	same	good
Madera Co. MAD	Malathion	air	0.5	same	good
Tulare MAD	Parathion	air	0.1	<i>C. tarsalis</i>	poor
Butte Co. MAD	Toxaphene	air	0.6	<i>C. tarsalis</i>	fair
Sutter-Yuba	Dieldrin	air	0.1	<i>C. tarsalis</i>	poor