A UNIT FOR CATCH BASIN SPRAYING

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The scarcity of motorcycles in early 1947 and the need for some type of unit for spraying catch basins were the motivating factors which prompted the writer to try the motorized scooter.

The basic unit is a Cushman Motor Scooter, Model 59 chassis. This is a three-wheeled, heavy duty, industrial type of scooter with a load capacity of 300 pounds. A 60-gallon high-pressure tank was mounted between the front wheels in the space provided for the cargo body. The actual mounting was done by welding four "Y" supports to the tank and then bolting the supports to the chassis of the scooter.

The necessary air pressure in the tank for spraying was supplied by a Model 737 Tokheim air compressor (less the base). The compressor was bolt-mounted to an inverted "U" frame over the rear or driving wheel. The "U" frame in turn was weld-mounted to the rear wheel suspension frame of the scooter. To make headroom for the compressor it was necessary to remove the floor of the tool compartment behind the driver's seat.

The compressor was belt-driven from a take-off pulley mounted on the end of the scooter motor crankshaft just outside the air circulating or cooling fan. A section of the left side of the scooter body (see Fig. 1) had to be set out to make room for the take-off pulley and the belt to the compressor. The small box-like structure on the set out section was installed as an air-scoop to overcome overheating difficulties but it proved ineffective and has since been removed.

An idler pulley arrangement permits "cutting" the compressor in or out as desired.

Although two of these scooter units have been in operation for one full season, there still remains some doubt as to whether the unit can "take it." Considerable trouble was experienced the latter part of the season with overheating of the motors—in fact, it became necessary to overhaul them. With the thought that this overheating may have been occasioned by the position of the take-off pulley immediately in front of the air circulating fan, thus interfering with the proper circulation of air across the motor, the take-off pulleys were removed. As it was near the end of the season, however, the scooters were not operated enough to determine if overheating was caused by these pulleys blocking proper air circulation. It is possible that continuous overloading of the scooters by approximately 200 lbs. during the hottest part of the summer may have been the chief cause of this overheating. With the removal of the take-off pulleys and compressors, air pressure for spraying was maintained by the "service-station-stop" method. An initial pressure

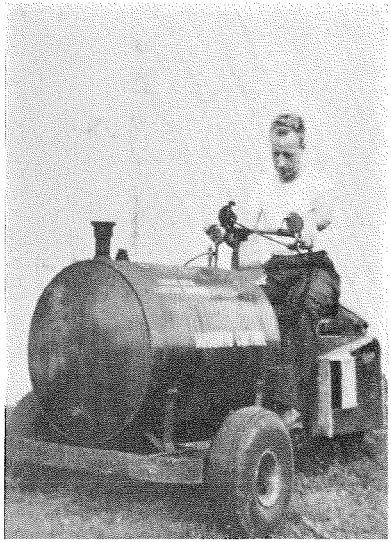

FIG. 1. Motor Scooter Catch Basin Spraying Outfit.

of 90 psi was placed on the tank containing 40 gallons (two-thirds full) and when, during the course of spraying activities, the pressure dropped to around 50 psi the operator would pull into a convenient service station and restore the pressure to 90 psi. It was found that only one service station stop was necessary to empty the tank.

Toledo is relatively flat and observations thus far suggest that this type of unit would not prove successful in hilly areas. The scooters are not very satisfactory hill climbers, especially when fully loaded. Should anyone contemplate the use of such a scooter for catch basin spraying, it is suggested they first test it out fully loaded with 300 to 400 pounds (including tank) in addition to the driver and under conditions comparable to which it would be required to operate during spraying activities, including stopping and starting on hills. It is further suggested that the tank size be reduced to 40 gallons and that the larvicide load be limited to 25 gallons to conserve weight. Tanks should also be provided with baffles.

NOTE: The engineering and installation of the air compressor hookup was done largely by Mr. Frank Irons and his staff of the Bureau of Soils and Agricultural Engineering.

COMPARATIVE TOXICITY OF DDT AND SOME OF THE NEWER INSECTICIDES TO ADULTS OF SALT-MARSH MOSQUITOES [1]

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In tests conducted by Madden *et al.* (1945) and Lindquist *et al.* (1945), DDT sprays applied from airplanes and on the ground showed promise as a means of control for adults of salt-marsh mosquitoes. Similar tests, made during August and September 1946, in which DDT was compared with benzene hexachloride, technical chlordane, and chlorinated camphene, are reported in this paper. All these materials had shown considerable toxicity to house flies and mosquitoes (Slade 1945; Kearns *et al.* 1945). Two samples of benzene hexachloride (gamma isomer contents of about 6 and 12 per cent) were available.

The tests were made in Florida, in densely wooded areas bordering Mosquito Lagoon, just south of New Smyrna Beach, in equally dense jungle bordering Banana River, just north of Cocoa Beach, and in areas at the head of the Indian River near Oakhill and Shiloh. *Aedes taeniorhynchus* (Wied.), *A. sollicitans* (Walk.), and *Psorophora confinnis* (L.-Arr.) were present, the first species being predominant. A few other species, such as *Psorophora ciliata* (F.), were also found in the test areas, but their numbers were insignificant.

Counts of the adult mosquito landing rate (number landing on one man per minute) were made on each plot the afternoon prior to treatment, as a check on the uniformity of the population. Un-

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[2] Albert N. Davis and E. Nottingham assisted in making these tests.