

Fly control on a Mushroom Farm

in southern California

Flies in mushroom houses act as carriers of various mushroom diseases. In addition, fly larvae break down the compost of the mushroom producing beds, in which the flies breed, and feed on the mushroom mycelia. In southern California, where mushrooms are grown throughout the year, the problem of fly reinfestation from the outside is always present. Phorid and sciarid flies are the most numerous, attracted by the odor of the beds immediately after spawning. Infestations are heaviest after wet weather or following irrigation of adjacent areas. Control is necessary both for protection of the mushrooms and from the standpoint of sanitation. Flies must be kept out of the producing houses and nearby dwellings. One large mushroom farm has developed a successful fly-control program.

Combined Control Methods

The program developed did not depend on chemicals or insecticides alone. Cultural and mechanical methods were taken into consideration and modified. The working area was cemented and periodically swept clean with a machine similar to a street sweeper. The surrounding areas were sprayed with dieldrin after the trash and weeds were removed. Deodorizing chemicals were atomized into the air, high above the buildings, to cut down the odors arising from the composting piles. These operations have de-



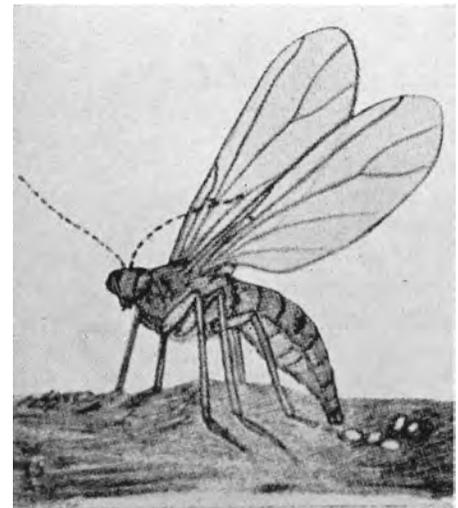
Adult Phorid fly.

creased the number of flies attracted to the compost piles and to the farm buildings.

The flies that entered the mushroom houses during the process of filling the benches were eliminated as the houses were closed tight and the compost was steam-pasteurized. Diazinon slurry—consistency of very thick paint—was applied with a paint brush to doors and framings and around the vents while the houses were being cooled. The outside walls were thoroughly sprayed with diazinon at the rate of six pounds of the 25% wettable powder per 25 gallons of water, and the attics were dusted heavily with diazinon 2½% dust. These treatments were repeated every 10 to 14 days. Inside the houses, the walls were sprayed with diazinon at the same dosage as used for the outside walls. Care was taken not to spray the mushroom beds. The slurry was also applied to the door and framing on the inside. In the case of a heavy infestation of phorids inside, the posts and baseboards of the beds were also painted with the slurry. It was necessary to open the bottom vents for air circulation. Cheesecloth sprayed with diazinon and placed over the bottom vent openings to keep flies from entering the houses did not allow sufficient air circulation. Electric fly-screens installed in the vent openings gave satisfactory results.

Insecticides were not applied directly to the beds at spawning time because of unsatisfactory results obtained in preliminary experiments. Materials tested on the beds were: malathion, 25% wettable powder; diazinon, 25% wettable powder; diazinon, 2½% dust; trithion, 25% wettable powder; dipterix, 50% soluble powder; DDVP, 10.3% emulsifiable concentrate; dieldrin, 25% wettable powder; dieldrin, 5% dust; DDT, 50% wettable powder; DDT, 5% dust; methoxychlor, 25% wettable powder; lindane, 20% emulsifiable concentrate.

The dusts were applied at the rate of



Adult Sciarid fly laying eggs.

1.5 ounces active ingredient per 1,000 square feet; the sprays were used at 1.0 pound active ingredient per 100 gallons of water. The compost was thoroughly soaked.

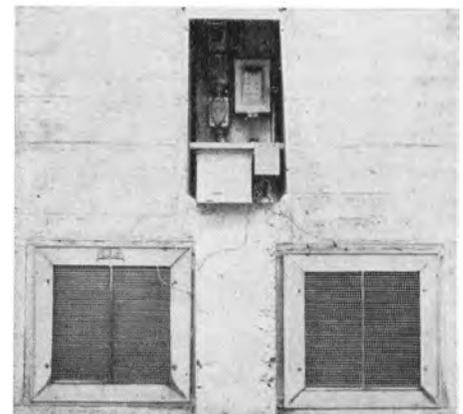
Treatments Effective

All treatments were applied to the compost in standard mushroom trays just before spawning. Materials applied in this manner either inhibited mycelial growth or produced a few huge mushrooms, while normal mushrooms were produced in the checks.

This program, combining cultural, mechanical, and chemical methods of control, has proved very successful. Losses from flies and diseases have been held to the minimum. Furthermore, complaints from neighbors about flies and odor have decreased.

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Modified form of "Champion Fly-Insect Electro-cutor" installed in the vent openings.