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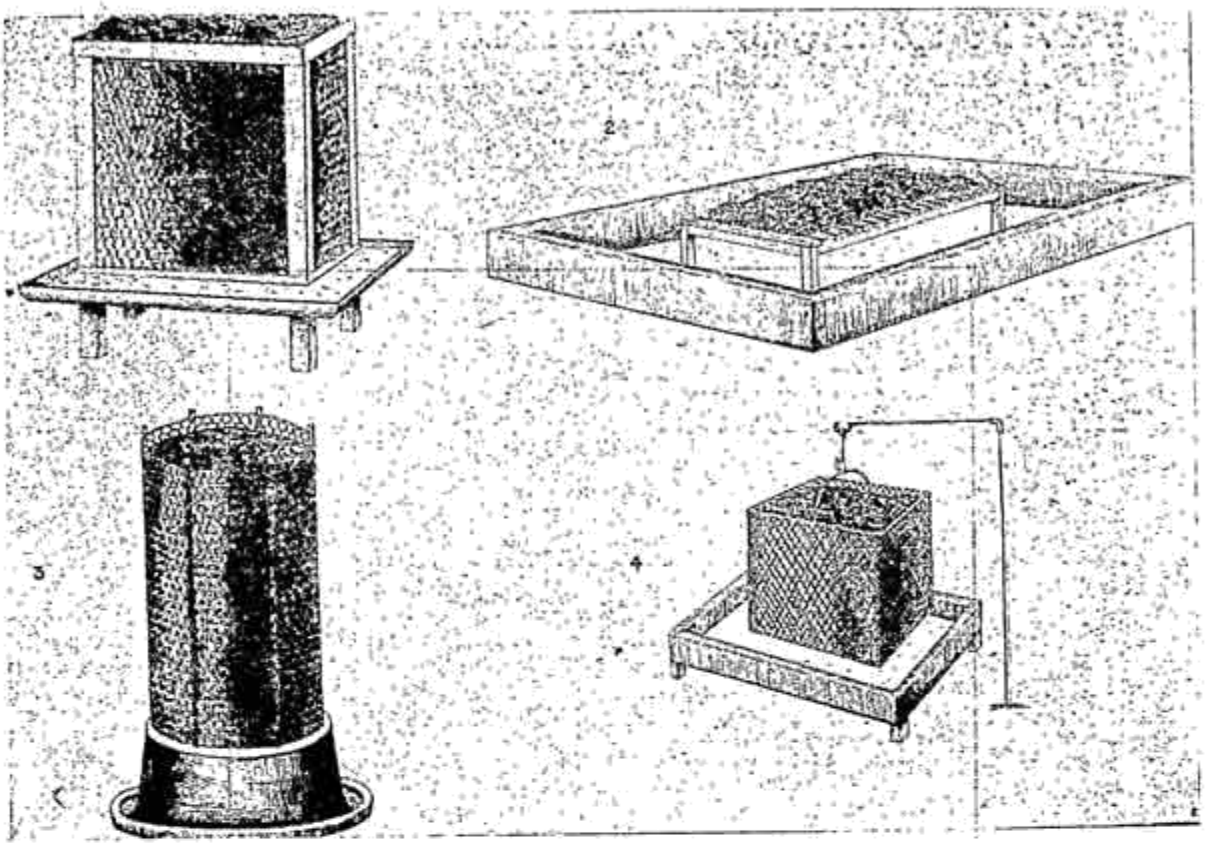
of the supply of water in the channels. It is only recently that scientific knowledge on this aspect of the question has advanced. However with the advances of knowledge on soil physics and water-relationship between the soil and the plant now, the Agricultural Department is in a position to advise the Irrigation Department, when such advise is required. As regards the other question of revenue, there have always been two views held respectively by the people who give and who take it, the former wishing to give as little as possible and the latter trying to take as much as possible. And this has led to differences between the two. As regards the water-rate, it was fixed at a time when times were prosperous. Everyone has been hit hard by the present depression and there is no use crying against each other.

THE HOUSEFLY NUISANCE AND ITS CONTROL WITH MAGGOT TRAPS.

By T. V. RAMAKRISHNA IYER, B.A., Ph. D. F. Z. S.

Man and the Housefly: It is well known that the common housefly is one of the worst pests of our dwellings and that, during certain seasons in the year, this creature becomes a terrible nuisance. Though for all appearance this dark grey flying insect looks an innocent and harmless creature and is unable to cause pain like the mosquito its potentialities for mischief are formidable; for, it is not only a mechanical nuisance flying about the nooks and corners of our dwellings, visiting both filthy and wholesome materials and contaminating the latter, but it has also gained great notoriety as a terrible disease carrying agent. Infectious and dangerous diseases like Cholera, Tuberculosis, Typhoid and Dysentery are easily carried by the fly from those suffering from these diseases to healthy persons. The general features of the body of the fly are specially suitable for performing its functions very effectively; for it has its legs, body, wings and the mouth parts well supplied with hairs and bristles which serve as excellent media for carrying infective particles. Infection is mainly caused by the direct contact of the different parts of the body which carry germs of disease with wholesome food, drinks, etc., when the fly perches on the latter; the fly has also the habit of depositing its excretory particles, foeces 'specks' which may contain highly infectious germs in great numbers. In its habits, therefore, this fly is disgustingly filthy, feeding indiscriminately on excrement of all kinds such as vomit, sputum, nasal and eye discharges, pus and blood from boils and wounds; in the same manner, it is equally attracted by all the best and tasteful of human food stuffs and will, when not disturbed, pass to and back between the two extremes. It is, therefore, incumbent on every householder and citizen and on every person responsible for the general sanitation and health of our villages and inhabitants that sufficient attention is paid to this terrible pest.



SOME TYPES OF FLY MAGGOT TRAPS

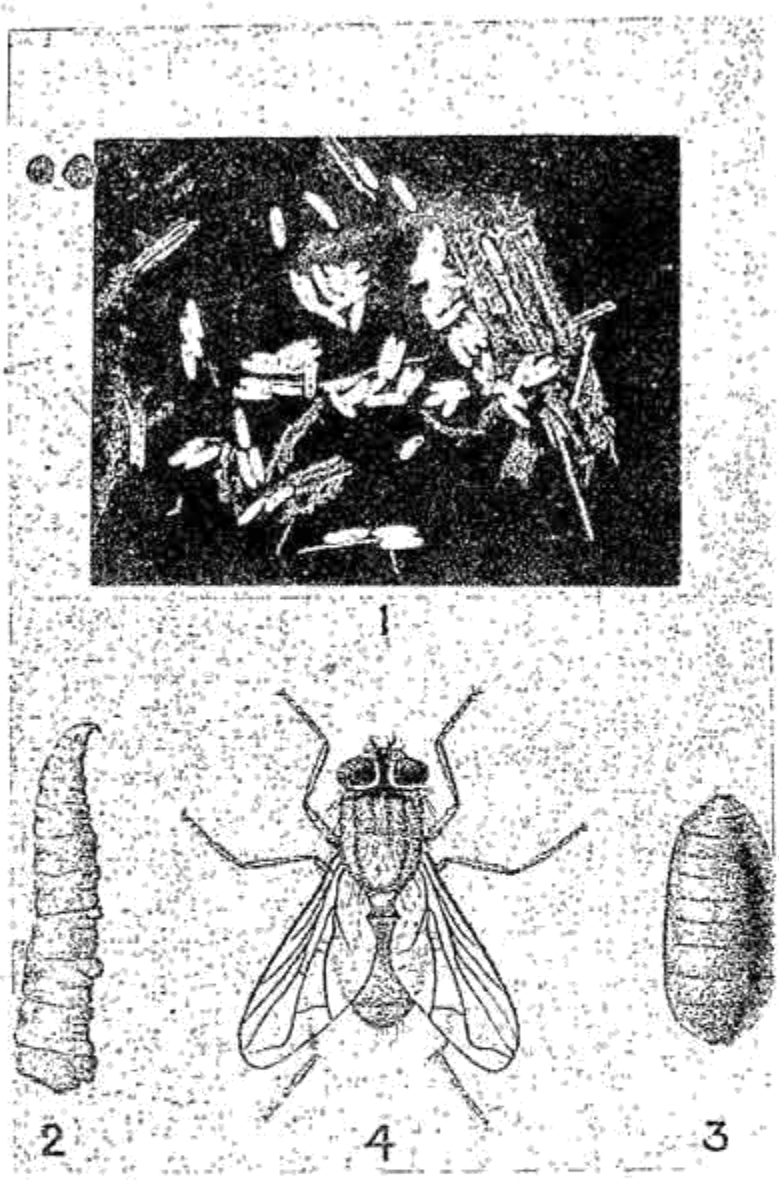
Fig. 1 The Farm Model. This is a rectangular wooden frame work standing on four legs enclosed by ½'' wire netting all round and open above. All round the base of this wire walled compartment is a sloping plank leading into a V—shaped drain of galvanised iron containing water. Manure to attract flies is dumped into the wire gauzed enclosure and the mature maggots in their attempts to migrate away from moisture come out of the manure heap through the meshes of the wire gauze and drop into the channel below through the sloping plank.

Fig. 2. This is the model used in American farms. It is a grated wooden platform on short legs placed in the middle of a vat or basin of water; the manure is heaped on the platform and the maggots wandering away from the moist heap drop into the water and get drowned.

Fig. 3. A wire gauze frame over an inverted water tub; here the inverted lip of the tub serves as the water channel to trap the maggots when they escape from the wire gauzed enclosure inside which manure is heaped. This enclosure is made of split bamboo bits attached to the sides of the tub. This is the one used at Anakapalle.

Fig. 4. This is a wire gauze basket to hold the manure hanging over a water basin. While Nos. 3 and 4 are small and cheap models which would be found convenient for households, Nos. 1 and 2 will be found suitable for large farms and cattle depots.

The main principles are same in all these.



1. Eggs. 2. Maggot. 3. Pupa. 4. Adult.

HOUSE FLY

The Fly and its Life-history: It will help us to know something of the life-history and habits of the fly before we adopt measures of control. The fly is a greyish dark active creature with two wings and measures about $\frac{1}{4}''$ in length. There are numerous species of the housefly in different parts of the world showing differences in coloration and slight variations in appearance, but in general life habits, all these are similar. The life history of the housefly just like that of a butterfly, beetle, moth or wasp shows four stages—the egg, the maggot, the pupa and the fly; it is only this last flying stage with which most laymen are familiar. The life story of the fly is like this. The female fly lays numerous cream white eggs in batches of hundred or more generally on horse and cattle manure and all kinds of decaying animal and vegetable matter. These eggs hatch into small worm-like larvae called 'maggots' and the period taken to hatch depends a good deal on the weather, the hatching being quicker during damp hot weather and retarded during dry cold months. Generally, in about 30 to 40 hours the eggs hatch; the maggots feed on the manure or excretion on which they were born and grow into yellowish white cylindrical maggots measuring about $\frac{1}{3}$ to $\frac{1}{2}$ an inch. In about 4 or 5 days they become full fed and hasten to change into the next stage—the pupa; before changing into the pupa the full fed maggots have the habit of crawling away from their moist surroundings towards drier parts of the manure heap, the soil around, under stones, etc., and then change into the brownish seed like pupa (fig.). It remains in this stationary stage generally for two to four or five days according to the temperature of the environment. Generally it takes about 12 to 15 days for one life cycle from egg to adult. Bright sunny weather stimulates their breeding habits and cold dry weather retards the same. In every uncared for manure pit and rubbish heap one can easily come across millions of fly maggots revelling in the midst of their inexhaustible food material and preparing to emerge as prospective members of the numberless swarms of flies hovering about such insanitary situations in our villages and towns.

Fly control with maggot traps: The most effective and radical measure to get rid of the housefly nuisance or at least to minimise its mischief is based on a knowledge of its life history and habits and this is to prevent its breeding and rapid multiplication; for this, one has to tackle the breeding grounds of the creature. The defective disposal of night soil, and of town and village rubbish, is the main cause of the housefly nuisance in every place. The remedial measures for such a state of affairs are of course, in the hands of health officers and sanitary inspectors. But, in small farms and households, other methods will also give some relief. These measures include the use of traps of different kinds to attract and kill the pest. Usually, these consist of fly papers, poisoned baits and other mechanical devices;

these are measures only against the adult flies. There is, however, another method in vogue in some western countries which is aimed at the destruction not of the fly but that of the developing maggots and the devices adopted for this are called 'maggot traps.' These are constructed with the idea of entrapping and destroying the maggots in the manure and thus prevent their pupation and reaching the adult condition. The main underlying principle on which these traps depend is the fact that mature fly maggots, before they pupate, exhibit a negative hydrotropism—that is, they migrate away from their moist surroundings and seek dry corners for pupation ; this habit is taken advantage of and utilised in the control. Every such maggot trap is constructed with a sufficient supply of food material of the proper consistency to attract flies to lay eggs and allow the larvae hatching out of these eggs to grow into full fed maggots, and at this stage, to trap and drive them to destruction. The chief requisites of such a trap are—first, an open platform or enclosure to store an attractive heap of moist manure or garbage to tempt the flies which freely lay eggs on it giving rise to active maggots and, secondly, an arrangement around this platform to trap the full grown maggots to a watery grave before pupation. With these two essential provisions a maggot trap can be made of any dimensions and of any quality and cost. In the case of big farms, dairies, stables, etc , where there is an enormous accumulation of manure every day, fairly large and strongly constructed traps will be found effective and economic in the long run. For small households, etc., cheap ones can be made. The type of trap (Fig. 2) used in some parts of America consists of a grated wooden platform on short legs placed over a cemented basin or vat of water. The manure to trap the flies is heaped on the platform and kept thoroughly moist. The mature maggots in the heap, driven by negative hydrotropism, migrate away from the moist heap to pupate and, in doing so, drop into the water below and get drowned. The size of the vat and that of the manure dumping platform will depend upon the needs of the particular farm or household and the cost of course will vary accordingly. The following are some of the models suggested as maggot traps.

Farm model. Fig. 1. *Tray & platform.* Fig. 2. *Inverted water tub.* Fig. 3. *Hanging wire basket.* Fig. 4.

The important points to be attended to in this connection are that the manure in the trap must be never allowed to get dry and it should be renewed once in four or five days ; the former is to prevent the maggots pupating in the heap and the latter to supply fresh food material for flies to breed satisfactorily.

Every householder can easily set up such a trap in fly infested localities and help in minimising the fly nuisance.