

FLY-CONTROL Methods in Use at Beltsville Can Be Used on All Dairy Farms

The first warm days of spring bring forth a host of insects which rapidly increase in numbers and remain until the coming of cold weather. Of these insects none give so much trouble to the dairy farmer as the fly. It not only mars the appearance of equipment, ceilings, walls, and windows but is of constant annoyance to animals and caretakers. It carries on its feet and body thousands of undesirable bacteria which contaminate milk with various organisms.

Of the many species of flies three cause the most trouble to the dairy farmer: The house fly, a nonpiercing-mouth insect breeding in decaying vegetable matter; the stable fly, a piercing-mouth insect breeding in decaying vegetable matter; and the horn fly, another piercing-mouth species, which breeds in the fresh droppings of cattle.

Since 1924 the Bureau of Dairy Industry, in cooperation with the Bureau of Entomology, has conducted a systematic fly campaign at its dairy experiment farm at Beltsville, Md. Three methods of suppression have been employed, all of which are generally applicable to dairy farms. These methods are control of breeding places, trapping, and spraying. The control effected at the farm by following this plan is indicated by the reduction in the quantity of flies caught in traps from 86 gallons in 1925 to 30 gallons in 1928.

Control of Breeding Places

The big problem in the control of breeding places is the removal of the manure. In the case of the milking herd, if the manure is piled in the open, it should be removed at least once a week or more frequently in warm weather. It has been observed at Beltsville that flies breed more freely in the manure from calves receiving milk in any form than in the manure of the milking herd or the remainder of the calf herd receiving a ration free of milk. In large breeding establishments or on large dairy farms where many calves are raised and their manure piled separately, it is necessary, therefore, to remove it at least twice a week. If the manure from calves receiving milk and that from the rest of the herd are mixed, it should be disposed of oftener than once a week. It is best to store manure under a covered shed. If this is not available piling it on a concrete surface is of help in preventing the escape of mature larvae. If the manure is piled directly on the ground, clay soil is preferable to gravel, as the open spaces in the gravel soil are favorable for the larvae to pupate.

Regardless of the frequency with which the manure is removed, some larvae will mature and enter the ground. Treatment of the soil every few weeks with fuel-oil distillate at the rate of 5 gallons to every 100 square feet of ground will kill larvae which have entered and serves as a repellent for some time after its application. This distillate should not be applied directly to the manure as it tends to impair the value of the latter for soil improvement.

Control by Trapping

The flies themselves may be destroyed in two ways—by trapping and by spraying. Trapping is very effective for the house fly. Farmers' Bulletin 734-F, Fly Traps and Their Operation, describes

various types of traps which may be used. In order that the traps may be of the greatest usefulness certain points should be given careful attention. Location is of prime importance. The traps should be placed at the natural congregating place of the flies, preferably on the floor in a sheltered spot and where there is good light. Choice of bait is also important. In the control work at Beltsville it has been found that either blackstrap molasses or corn sirup mixed with water in the proportion of 1 part to 4 parts water is a lasting and attractive bait. Other substances, such as watermelon rinds, crushed fruit, skim milk, and certain grain feeds may be used, but these require more attention. The molasses and sirup baits should be replenished at least twice each week during hot weather, and the bait pans should be cleaned and new bait placed in them every two weeks. When adding bait it is advisable to examine the cone of the trap for spiders, as they are apt to weave their web across the narrow opening, thus preventing the flies from entering the trap.

Traps should be emptied regularly even though they are not so full as desired, as this lessens the odor which emanates from the dead flies and which is undesirable around dairy buildings. At the time of emptying the traps should be cleaned, as flies will not enter dirty traps readily. Steam has been found to be very effective for cleaning and leaves the traps very nearly free of odors.

If steam is not available the traps should be washed with water and allowed to dry in the sun before being placed over the bait pans.

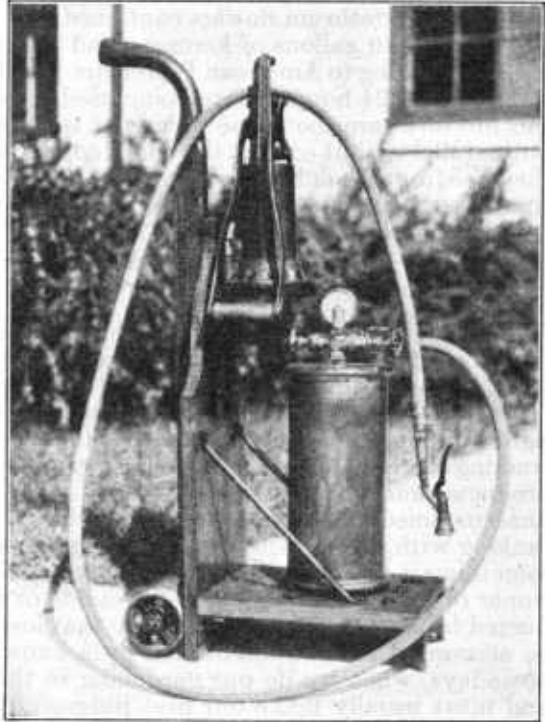


FIGURE 92.—Type of heavy duty sprayer used in fly control work at Beltsville, Md.

Control by Spraying

Spraying the cows directly is of advantage mainly in controlling the horn fly. With other kinds of flies the better plan is to spray them thoroughly with a killing spray while they are settled on various parts of the stable. The sprayer used should be capable of withstanding a pressure of from 35 to 45 pounds, and the spray nozzle should throw a finely atomized spray covering considerable area. The number of flies killed depends upon the time of day that the spray is

used. As a general rule, flies are congregated on the ceilings and walls in the early morning and are somewhat sluggish in their movements. This is one of the best times to spray. By late afternoon the flies begin to gather at certain points in the buildings for the night. This is again a good time to spray. It is also a good plan to spray the feeding places of flies when a large number of them have gathered. If the manure is properly hauled, thorough spraying need be done but three times per week. Figure 92 shows a heavy duty sprayer from which good results have been obtained. An 8-foot bamboo extension pole is used to replace the nozzle in the illustration and is useful to reach out-of-the-way places where flies congregate.

An effective spray can be made by soaking 5 pounds of unground, half-closed pyrethrum flowers contained in a double-thickness cheesecloth bag in 10 gallons of kerosene and 5 quarts of fuel oil of gravity 28-32 according to American Petroleum Institute scale. This mixture should stand 24 hours before being used. In spraying horn flies with this mixture care should be taken not to spray directly on the animal but parallel with it so that the spray comes in contact with the flies as they rise from the animal. The animal should not be brushed for some time after being sprayed, as this forces the oil next to the skin and may cause a loss of hair.

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FOOD Colors Certified by the Department are Both Harmless and Pure Three senses are preeminent in nature's testing of foods—taste, smell, and sight. Of these, taste is the most important for human beings, but sight and smell are almost equally valuable. Through generations of training we have grown to associate certain colors with certain food products, and our impulse is to turn away from articles exhibiting unaccustomed variations. In short, a change of color is a danger signal, ranking with a bad taste or a disagreeable odor in its indication that something is wrong. In the early days, when the producer and consumer of food were one, every vegetable or fruit was personally conducted from the field to the table, so that loss of color could frequently be accounted for and discounted by a knowledge of the cause. But nowadays, when we do our gardening in the grocery or delicatessen, and must usually make our first judgment by appearance alone, we depend more than ever on our eyes to guide us in our choice.

This fact was recognized many years ago, and the first use of artificial color in foods was for the purpose of covering up a change of shade due to damage or adulteration. Mineral salts of all kinds were freely employed, and brilliant compounds of lead, mercury, and copper found their way into materials intended for human consumption. Naturally, the results were very serious, and the prejudice against artificial colors in foods, which still exists, dates back to the revelations of the early investigators in this field.

Legitimate Use of Color in Foods

There are, however, certain conditions under which artificial color may be legitimately added to foods. A dye, harmless in itself and containing no harmful impurities, may be used without objection if it does not result in concealing damage or inferiority, provided appropri-