

# Help Prevent Fruit Fly Spread

Entomology

Millions of housewives of America are about to be drafted into the fierce war that Uncle Sam is waging upon his most dangerous insect enemy, the Mediterranean fruit fly.

Thousands of grapefruit, shipped from Florida before the discovery of the pest there last month, and known to contain larvae capable of strewing the omnivorous insect throughout the land, are in commerce. They are more dangerous to the future of agriculture than so many explosive bombs. Particularly in the cotton states, from Texas eastward, these grapefruit are likely to appear on breakfast tables. If they are consumed they will do no harm, for even wormy fruit is not poisonous to human beings. But in a few days the larvae will begin to grow large and the fruit will appear markedly spoiled when halved. Even a small amount of such wormy, maggoty fruit thrown into the garbage without being destroyed by burning may spread the fruit-fly plague and cause untold millions of dollars of damage.

U. S. Department of Agriculture officials, with action reminiscent of world-war days, have appealed to every cook and housewife as well as all dealers that handle fruit to be on watch. Over 2,000 state and federal extension workers have been detailed as emergency leaders of the massive counter-attack upon the fruit fly. Within a week they will be carrying the news of the danger to housewives and retail dealers.

The Mediterranean fruit fly was discovered near Orlando, Fla., on April 7. Federal and state entomologists got into action immediately. Congress appropriated \$4,250,000 as fighting funds and Florida cooperated vigorously. Embargos and quarantines were clamped down upon infested areas, tons of ripe fruit were destroyed, and a battle of extermination was begun. But it was discovered that two-thirds to three-fourths of fruit in the infested areas had been shipped out of the state through normal commercial channels.

Much of the crop, mostly grape-

fruit, went to the states of the cotton belt from Texas and Oklahoma eastward. Lower grade fruit, probably heavily infested, went by auto truck to nearby states, and small quantities of packed refrigerated grapefruit may have traveled to any part of the nation. Grapefruit in the center of the fruit-fly regions was found to be 100 per cent infested and it is therefore most dangerous. Placing the fruit in cold storage will delay the development of the larvae and thus prolong the danger of the pest getting loose in uninfested parts of the country.

Practically all the fruits grown in the United States, except pineapple and watermelon, are attacked by the Mediterranean fruit fly, which the U. S. Department of Agriculture calls "probably the worst of all fruit pests". Such garden vegetables as ripe tomatoes, Bell peppers, egg plants and beans are invaded by the fly.

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## How to Detect Infested Fruit

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To aid housewives and others in fighting the Mediterranean fruit fly menace, which is likely to be spread throughout the nation by infested grapefruit shipped from Florida before the discovery of the pest there, the Plant Quarantine and Control Administration of the U. S. Department of Agriculture has issued the following information:

"The indications of infestation particularly of grapefruit will be a softening of the fruit as a whole or in particular spots, such softness being readily determined by the pressure of the fingers at different points of the surface. A more pronounced infestation will be characterized by the bleeding of the fruit under slight pressure at exit holes which are made through the rind by the maturing maggots. Sometimes an indication will be a slight hardening and browning of the skin at the place covering the point in the orange where the maggots are working. This discoloration may be found even when there has been no noticeable softening at such point. No household fruit, under any suspicion whatever, should be kept in tightly covered but should be thrown out into the garbage or other metal or glass containers to be turned over promptly to the proper State plant inspector or local officer designated by the State. In a few slightly infested fruit infestation may be difficult to find inasmuch as the maggots are very active and are apt to wriggle out of sight into more or less firm tissue, but in all cases of advanced in-

festation or where the maggots have reached nearly full growth their finding is not difficult.

"Look in the fruit for slender, whitish or pale-colored maggots that are stout behind and taper strongly towards the head end. These may be as little as 1/25 or as much as 1/3 inch long, according to their age. *Larvae with legs or with a plainly recognizable head are not fruit fly larvae.* Fruit fly larvae have only two pairs of breathing pores or spiracles, one pair at the posterior end of their body, each half showing three narrow openings, the other pair near the front end. True fruit fly larvae have the posterior spiracles set flush with the end of the body; other larvae which may be found in fruit have them set at the ends of protruding cylindrical tubes. These protruding tubes are important in separating fruit fly maggots from those of scavenger flies.

"All fruit found to be infested, whether in homes or in the hands of distributors or in storage, should be destroyed and by that is meant the entire lot of fruit with no effort at selection. The infestation, unless it has gone so far as to soften the fruit or cause its decay, cannot necessarily be determined by exterior inspection. Fruit containing many maggots of nearly full grown stage will often give no visible indication of infestation.

"For the destruction or sterilization of small supplies in households, any method of heating or cooking, or burning in the furnace, will answer. To shorten the time the fruit should be quartered or sliced and brought to the boiling point in any appropriate vessel. Similarly, baking in an oven,

if continued long enough to have the heat penetrate to the center of the fruit, will do the work. It cannot be too strongly emphasized, however, that no bad fruit should be discarded or thrown out or fed to animals. To throw out fruit or garbage of this sort would be furnishing the fly with the very best facilities for completing its development. In short, cook or otherwise sterilize all infested fruit, reserving only a few maggots for identification. These can be killed in hot water or immediately immersed in 50 per cent alcohol and mailed for determination in a small, carefully packed, stoppered bottle to prevent its being broken, to the proper identifying officer of your State or district.

"Probably the simplest method of effectively destroying and safeguarding infested fruit in bulk is to bury it in deep pits so that when partially filled with fruit at least three feet of earth can be placed on top and tamped and wetted down. Prior to replacing the earth, however, the fruit and pit should be heavily sprayed with fuel oil or motor oil—the discarded oil from garages will serve the purpose very well—or a covering of several inches of quicklime should be placed over the top of the mass, the filling up with soil and wetting down to follow.

"Where considerable quantities of fruit are involved or where it is not practicable to destroy it at once by simple methods and with the owner's consent, the proper State quarantine officer should be promptly notified of the situation by telegraph, so that the destruction of the fruit can be effected, if necessary, under State police powers."

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