

PEST PROFILE

Common Name: Oriental Fruit Fly

Scientific Name: *Bactrocera (=Dacus) dorsalis* (Hendel)

Order and Family: *Diptera, Tephritidae*

Description: The adult Oriental fruit fly is somewhat larger than a housefly, about 8.0 millimeters (mm) in length. The body color is variable but generally bright yellow with a dark "T"-shaped marking on the abdomen. The wings are clear. The female has a pointed slender ovipositor to deposit eggs under the skin of host fruit. Eggs are minute cylinders laid in batches. The maggots (larvae) are creamy-white, legless, and may attain a length of 10 mm. inside host fruit.

History and Economic Importance: The Oriental fruit fly has been established in Hawaii since 1946 where it is a major pest of agriculture, particularly on mangoes, avocados, and papayas. Maggots have been found in over 125 kinds of fruit and vegetables in Hawaii alone. A great number of crops in California are threatened by the introduction of this pest, including pears, plums, cherries, peaches, apricots, figs, citrus, tomatoes, and avocados. It has been estimated that the cost of not eradicating Oriental fruit fly in California would range from \$44 million to \$176 million in crop losses, additional pesticide use, and quarantine requirements. Oriental fruit fly has been introduced into California a number of times through the movement of fruits and vegetables into the State. Four major infestations have been eradicated between 1960 and 1990.

Distribution: The Oriental fruit fly is widespread through much of the mainland of Southern Asia and neighboring islands, including Sri Lanka, Indonesia, Taiwan, Philippine Islands, Ryukyu Islands, Micronesia, and Mariana Islands. Distribution in the United States is restricted to the Hawaiian Islands.

Life Cycle: Females lay eggs in groups of three to 30 under the skin of host fruits; the female can lay more than 1,000 eggs in her lifetime. Time taken for development depends on the ambient temperature. Maggots tunnel through the fruit feeding on the pulp, shed their skins twice, and emerge through exit holes in approximately 10 days. The larvae drop from the fruit and burrow two to three centimeters into the soil to pupate. In 10 to 12 days, adults emerge from these puparia. The newly emerged adult females need eight to 12 days to mature sexually prior to egg-laying. Breeding is continuous, with several annual generations. Adults live 90 days on the average and feed on honeydew, decaying fruit, plant nectar, bird dung, and other substances. The adult is a strong flyer, recorded to travel 30 miles in search of food and sites to lay eggs. This ability allows the fly to infest new areas very quickly.

Hosts and Damage: In excess of 230 fruits and vegetables have been attacked. Fruit that has been attacked may be unfit to eat due to larvae tunneling through the flesh as they feed. Decay organisms enter, leaving the interior of the fruit a rotten mass.

Partial Host List

Common Name

Akia
Alexander laurel
Apple
Apricot
Avocado
Banana

Banana, dwarf
Barbados cherry
Bell pepper
Brazil cherry
Breadfruit
Caimitillo
Cashew
Cactus
Cherimoya
Cherry, Catalina
Cherry, Portuguese
Chili
Coffee, Arabian
Country gooseberry
Cucumber
Custard apple
Date palm
Dragon tree
Eggfruit tree
Elengi tree
Fig
Gourka
Granadilla, sweet
Granadilla, yellow
Grape
Grapefruit
Guava

Imbu
Jackfruit
Jerusalem cherry
Kitembilla
Kumquat
Laurel
Lemon
Lime
Longan
Loquat
Lychee nut
Malay apple
Mammee apple
Mandarin orange (tangerine)

Scientific Name

Wikstroemia phylluraefolia
Calophyllum inophyllum
Malus sylvestris
Prunus armeniaca
Persea americana
Musa paradisiaca var. *sapientum*
(*Musa x paradisiaca*)
Musa nana
Malpighia glabra
Capsicum frutescens grossum
Eugenia dombeyi
Artocarpus altilis
Chrysophyllum oliviforme
Anacardium occidentale
Cereus coerulescens
Annona cherimola
Prunus ilicifolia
P. lusitanica
Capsicum frutescens var. *longum*
Coffea arabica
Averrhoa carambola
Cucumis sativas
Annona reticulata
Phoenix dactylifera
Dracaena draco
Outeria campechiana
Mimusops--elengi
Ficus carica
Garcinia celebica
Passiflora ligularis
Passiflora lauriflora
Vitis spp.
Citrus paradisi
Psidium guajava
P. littorale
P. cattleianum
Spondias tuberosa
Artocarpus heterophyllus
Solanum pseudocapsicum
Dovyalis hebecarpa
Fortunella japonica
Calophyllum inophyllum
Citrus limon
Citrus aurantiifolia
Euphoria longan
Eriobotrya japonica
Lychee chinensis
Eugenia malaccensis
Mammea americana
Citrus reticulata

Common Name

	Scientific Name
Mango	<i>Manifera indica</i>
Mangosteen	<i>Garcinia mangostana</i>
Mock orange	<i>Murraya exotica</i>
Mulberry	<i>Morus nigra</i>
Myrtle, downy rose	<i>Rhodomyrtus tomentosa</i>
Natal plum	<i>Carissa grandiflora</i>
Nectarine	<i>Prunus persica</i> var. <i>nectarina</i>
Oleander, yellow	<i>Thevetia peruviana</i>
Orange, calamondin	<i>Citrus mitis</i> and <i>C. japonica</i>
Orange, Chinese	<i>Citrus japonica hazara</i>
Orange, king	<i>Citrus nobilis</i>
Orange, sweet	<i>Citrus sinensis</i>
Orange, Unshu	<i>Citrus unshu</i>
Oriental bush red pepper	<i>Capsicum frutescens abbreviatum</i>
Otaheite apple	<i>Spondias dulcis</i>
Palm, syrup	<i>Jubaea spectabilis</i>
Papaya	<i>Carica papaya</i>
Passionflower	<i>Passiflora edulis</i>
Passionflower, softleaf	<i>Passiflora mollissima</i>
Passionfruit (yellow lilikoi)	<i>Passiflora edulis flavicarpa</i>
Peach	<i>Prunus persica</i>
Pear	<i>Pyrus communis</i>
Pepino	<i>Solanum muricatum</i>
Pepper, sweet	<i>Capsicum frutescens</i> var. <i>grossum</i>
Persimmon, Japanese	<i>Diospyros kaki</i>
Pineapple guava	<i>Feijoa sellowiana</i>
Plum	<i>Prunus americana</i>
Pomegranate	<i>Punica granatum</i>
Prickly pear	<i>Puntia megacantha</i>
Prune	<i>Prunus domestica</i>
Pummelo	<i>Citrus grandis</i>
Quince	<i>Cydonia oblonga</i>
Rose apple	<i>Eugenia jambos</i>
Sandalwood	<i>Santalum paniculatum</i>
Sandalwood, white	<i>Santalum album</i>
Santol	<i>Sandericum koetjape</i>
Sapodilla	<i>Manilkara zapota</i>
Sapodilla, chiku	<i>Achras zapota</i>
Sapota, white	<i>Casimiroa edulis</i>
Seagrape	<i>Coccoloba uvifera</i>
Sour orange	<i>Citrus aurantium</i>
Soursop	<i>Annona muricata</i>
Star apple	<i>Chrysophyllum cainito</i>
Surinam cherry	<i>Eugenia uniflora</i>
Tomato	<i>Lycopersicon esculentum</i>
Tropical almond	<i>Terminalia catappa</i>
	<i>Terminalia chebula</i>
Velvet apple	<i>Diospyros discolor</i>
Walnut	<i>Juglans hindsii</i>
Walnut, English	<i>Juglans regia</i>
Wampi	<i>Citrus lansium</i>
West Indian cherry	<i>Malpighia puniceifolia</i>
Ylang-ylang	<i>Canaga odor</i>