



# **Fruit Insect Pests**



<http://www.virginiafruit.ento.vt.edu/StinkBugs.html>

# Bugs



<http://www.virginiafruit.ento.vt.edu/StinkBugs.html>

# *Cotinus nitida* ‘Green June Beetle (Linnaeus)



<http://www.virginiafruit.ento.vt.edu/gjb.html>



[http://www.caf.wvu.edu/Kearneysville/pest\\_descriptions/visualkey/pfruviskey.html](http://www.caf.wvu.edu/Kearneysville/pest_descriptions/visualkey/pfruviskey.html)

# June Beetle

- **Biology** :One generation of adults matures each year. Grubs overwinter up to a foot (0.3 m) or more below the soil surface. They gradually make their way close to the surface during the spring, and feed mainly on decaying plant matter and to a lesser degree on roots. Larvae may leave their protected sites and crawl on their backs to establish a new site elsewhere. The grubs pupate by May and adults emerge in early July and August. Eggs are laid in soil with decaying vegetation .

# June Beetle

- **V. Injury** :Like JB, adult GJB are responsible for the principal damage to peaches. Beetles feed on petioles, leaves and fruit, and a single adult can cause significant damage. Adults are often found in groups and take large chunks from the fruit. Fruit injury is not as common as that from JB, but does occur when populations are large. Most injury is seen in late July and August, and unlike injury from JB, can occur on both green and ripening fruit .



*Myzus persicae* ‘Green Peach Aphid  
(Sulzer)  
indirect fruit pest





# *Myzus persicae* ‘Green Peach Aphid (Sulzer)



[http://www.caf.wvu.edu/Kearneysville/pest\\_descriptions/visualkey/pfruviskey.html](http://www.caf.wvu.edu/Kearneysville/pest_descriptions/visualkey/pfruviskey.html)

# San Jose Scale

- *Aspidiotus perniciosus*) Comstock). The adult female insect secretes and lives under a nipple-shaped, waxy scale. The scales are usually distributed over the woody parts of the tree, but may be on the fruit. Frequently a reddened halo appears around the scale on both twigs and fruit. Severely infested trees show decreased vigor, thinning foliage, yellowing leaves, and even die-back of branches. Although distributed throughout the United States, the San Jose scale is less of a problem in Minnesota than oystershell scale ‘ *Lepidosaphes ulmi* (Linnaeus)

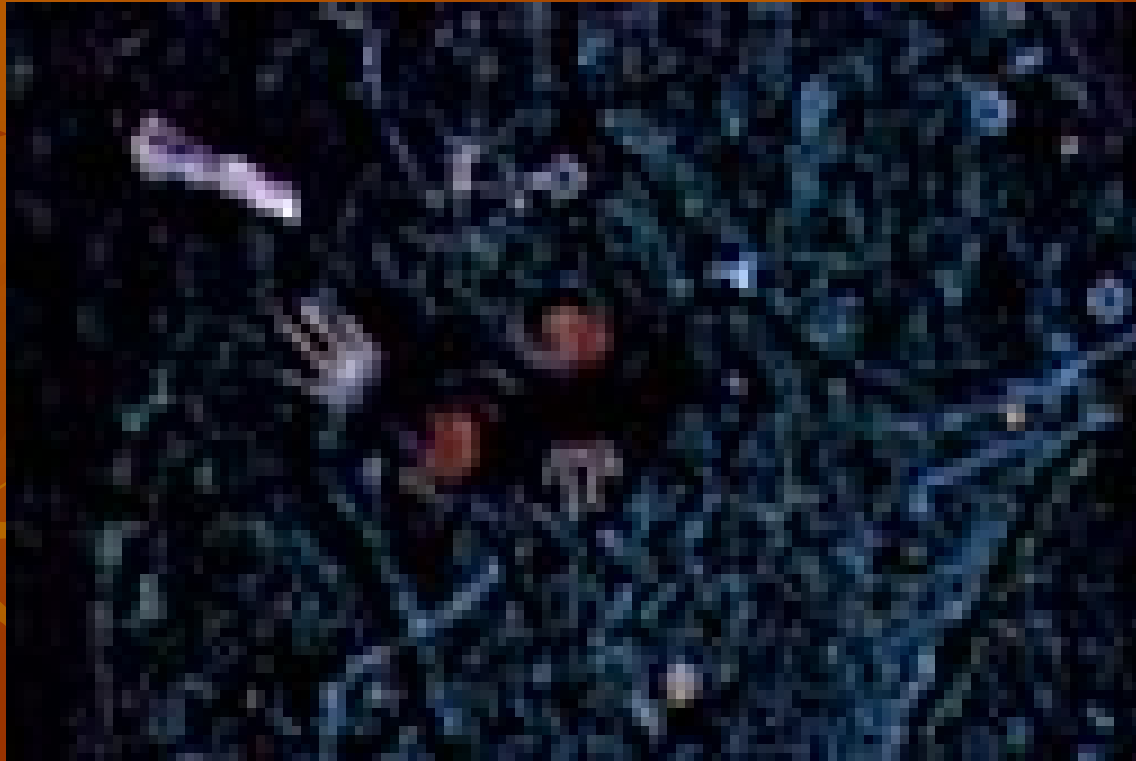
<http://www.extension.umn.edu/distribution/horticulture/DG0574.html>

# Scale insects



<http://www.extension.umn.edu/distribution/horticulture/DG0574.html>

# Two-Spotted Spider Mite



# Two-Spotted Spider Mite

- *Tetranychus telarius* (Linnaeus). The two-spotted spider mite is one of our more common mites and is found on nearly all ornamentals, flowers, and greenhouse plants, as well as on fruit trees. Feeding damage from light infestations first appears as pale patches on the leaves. Heavier infestations cause the entire leaf to become light-colored, dry up, and turn a reddish brown. The under surfaces of the leaf will have a webby covering under which the adult mite feeds and lays eggs. Although called "red spider," their color can vary from almost colorless to yellow, red, green, or nearly black.



<http://learningstore.uwex.edu/pdf/A2116.pdf>

# Fruit fly



<http://www.wikihow.com/Get-Rid-of-Fruit-Flies>



# ORGANIC FRUIT FLY CONTROL



[http://www.greenharvest.com.au/pestcontrol/fruit\\_fly\\_info.html](http://www.greenharvest.com.au/pestcontrol/fruit_fly_info.html)

# Mediterranean fruit fly

*Ceratitis capitata* (Wiedemann) (Insecta: Diptera:  
Tephritidae)

- The Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann), is one of the world's most destructive fruit pests. The species originated in sub-Saharan Africa



[http://creatures.ifas.ufl.edu/fruit/Mediterranean\\_fruit\\_fly.htm](http://creatures.ifas.ufl.edu/fruit/Mediterranean_fruit_fly.htm)



[http://creatures.ifas.ufl.edu/fruit/Mediterranean\\_fruit\\_fly.htm](http://creatures.ifas.ufl.edu/fruit/Mediterranean_fruit_fly.htm)

# Mediterranean fruit fly

- Because of its wide distribution over the world, its ability to tolerate cooler climates better than most other species of tropical fruit flies, and its wide range of hosts, it is ranked first among economically important fruit fly species. Its larvae feed and develop on many deciduous, subtropical, and tropical fruits and some vegetables.

# Hosts

- Although it may be a major pest of citrus, often it is a more serious pest of some deciduous fruits, such as peach, pear, and apple. The larvae feed upon the pulp of host fruits, sometimes tunneling through it and eventually reducing the whole to a juicy inedible mass. In some of the Mediterranean countries, only the earlier varieties of citrus are grown, because the flies develop so rapidly that late season fruits are too heavily infested to be marketable. Some areas have had almost 100% infestation in stone fruits. Harvesting before complete maturity also is practiced in Mediterranean areas generally infested with this fruit fly.

# Distribution

- USA, Albania, Algeria, Angola, Argentina, Australia, Austria\*, Azores, Balearic Islands, Belgium\*, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Canary Islands, Cape Verde Islands\*, Colombia, Costa Rica, Crete, Cyprus, Dahomey, Ecuador, Egypt, El Salvador, Ethiopia, France, Germany\*, Ghana, Greece, Guatemala, Guinea, Honduras, Hungary\*, Israel, Italy, Ivory Coast, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Madeira Islands, Malagasy Republic, Malawi, Mali, Malta, Mauritius\*, Mexico (chronic) (near Guatemalan border), Morocco, Mozambique, Netherlands\*, Nicaragua, Niger, Nigeria, Panama, Paraguay, Peru, Portugal, Reunion, Rhodesia, Rwanda, Saint Helena, San Miguel (Azores), Sardinia, Saudi Arabia, Senegal, Seychelles, Sicily, Sierra Leone, South Africa, Southern Rhodesia, Spain, Sudan, Switzerland\*, Syria, Tanzania, Tasmania, Togo, Tunisia, Turkey, Uganda, Uruguay, Venezuela, Yugoslavia, Zaire, and Zambia.







# Life stages



# Biology

- The length of time required for the medfly to complete its life cycle under typical Florida summer weather conditions, and on which eradication schedules in Florida are based, is 21 to 30 days. A female medfly will lay one to 10 eggs in an egg cavity 1 mm deep, may lay as many as 22 eggs per day, and may lay as many as 800 eggs during her lifetime (usually about 300). The number of eggs found at any time in the reproductive organs is no indication of the total number of eggs an individual female is capable of depositing, as new eggs are being formed continually throughout her adult life. Females usually die soon after they cease to oviposit.

# Biology

- Eggs are deposited under the skin of fruit which is just beginning to ripen, often in an area where some break in the skin already has occurred. Several females may use the same deposition hole with 75 or more eggs clustered in one spot. When the eggs hatch, the larvae promptly begin eating, and at first tunnels are formed, but may keep close together in feeding until nearly full grown. Fruit in a hard or semiripe condition is better for oviposition than fully ripened fruit. Ripe fruit is likely to be more juicy, and such fruits often are associated with a high mortality of eggs and young larvae

# Biology

- Females will not oviposit when temperatures drop below 60.8°F (16°C) except when exposed to sunlight for several hours. Development in egg, larval, and pupal stages stops at 50°F (10°C). Pupae carry the species through unfavorable conditions, such as lack of food, water, and temperature extremes. During warm weather eggs hatch in 1.5 to three days. The duration of the egg stage is considerably increased by lower temperatures.

# Biology

- Larvae pass through three instars. Larval life may be as short as six to 10 days when the mean temperatures average 77 to 79°F (25 to 26.1°C). The kind and condition of the fruit often influence the length of the larval stage. In citrus fruits, especially limes and lemons, it appears to be longer. Thus larvae require 14 to 26 days to reach maturity in a ripe lemon, as compared with 10 to 15 days in a green peach. Larvae leave the fruit in largest numbers at or just after daybreak and pupate in the soil or whatever is available.

# Biology

- Minimum duration of the pupal stage is six to 13 days when the mean temperature ranges from about 76 to 79°F (24.4 to 26.1°C). Back and Pemberton (1915) noted that this period may be increased to at least 19 days when the daily temperature means drop to about 69 to 71°F (20.6 to 21.7°C).



# Biology

- Adults emerge in largest numbers early in the morning during warm weather and emerge more sporadically during cool weather. They can fly short distances, but winds may carry them a mile or more away. Copulation may occur at any time throughout the day. Newly emerged adults are not sexually mature. Males often show sexual activity four days after emergence, and copulation has been observed five days after emergence. Both sexes are sexually active throughout the day. When the daily mean temperature averages from 76 to 78°F (24.4 to 25.6°C), most females are ready to mate from six to eight days after eclosion. Oviposition may take place as early as four to five days after emergence during very warm weather, but not for about 10 days when temperatures range between 68 to 72°F (20 to 22.2°C) (Back and Pemberton 1915).



# Biology

- Adults die within four days if they cannot obtain food. Usually about 50% of the flies die during the first two months after emergence. Some adults may survive up to six months or more under favorable conditions of food (fruit, honeydew, or plant sap), water, and cool temperatures. When host fruit is continuously available and weather conditions favorable for many months, successive generations will be large and continuous. Lack of fruit for three to four months reduces the population to a minimum

# Hosts

The Mediterranean fruit fly attacks more than 260 different fruits, flowers, vegetables, and nuts. Thin-skinned, ripe succulent fruits are preferred. Host preferences vary in different regions. Although several species of cucurbits have been recorded as hosts of the medfly, they are considered to be very poor hosts. Some hosts have been recorded as medfly hosts only under laboratory conditions and may not be attacked in the field. Knowledge of the hosts in one country often aids in correctly predicting those which are most likely to be infested in a newly infested country, but what may be a preferred host in one part of the world may be a poor host in another.

[http://creatures.ifas.ufl.edu/fruit/Mediterranean\\_fruit\\_fly.htm](http://creatures.ifas.ufl.edu/fruit/Mediterranean_fruit_fly.htm)

- Peach infested with larvae of the Mediterranean fruit fly, *Ceratitidis capitata* (Wiedemann)



<http://creatures.ifas.ufl.edu/fruit/medfly02.htm>

A female Mediterranean fruit fly, *Ceratitidis capitata* (Wiedemann), pumps eggs through her ovipositor into the soft outer layers of a ripe coffee berry.



[http://creatures.ifas.ufl.edu/fruit/Mediterranean\\_fruit\\_fly.htm](http://creatures.ifas.ufl.edu/fruit/Mediterranean_fruit_fly.htm)

# fruit flies emerge as adult flies from the soil



<http://www.canr.msu.edu/vanburen/fruitbug.htm>



# *Bactrocera oleae* female



<http://www.sel.barc.usda.gov/diptera/tephriti/PhotTour/Photos.htm>

# Fruit Fly (Diptera: Tephritidae) Taxonomy Pages

- <http://www.sel.barc.usda.gov/diptera/tephriti/tephriti.htm>