UF IFAS Extension UNIVERSITY of FLORIDA

ENY-413

Insect Management in Mango[1]

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This might be termed an insect pest control program, except that not all pests will be present each year. It is important to make careful examinations of trees for insect pests and apply measures for control only when they are needed. See Table 1.

The following insecticides are listed by the EPA as being cleared for use on mangos: methidathion (Supracide), insecticidal soap (M-Pede), *Bacillus thuringiensis*, oil spray (97% Aliphatic petroleum hydrocarbons), sulfur and Pyrellin (pyrethrins + rotenone).

These materials are sold under numerous trade names and the individual labels often differ from each other. In order to find the individual label that has specific directions for your use, contact the local County Agricultural Agent's office or local agricultural supply dealers.

Under the FIFRA amendment of 1978 the grower may use a material (insecticide) that is legal and EPA approved for a pest on a crop for other non-listed pests as long as the user follows the label directions and rates for the approved pest.

Precautions and Restrictions

Oil emulsion sprays may injure trees if applied during a very cold, dry period or during a hot (90°F) period.

Do not mix sulfur with oil emulsion or use either material within 3 weeks of the other.

There is no required waiting period for oil emulsion, sulfur, or Pyrellin.

Supracide - use only during postharvest to bloom stage. Do not exceed 5 applications per season.

Specific Pests

Beetles

The scolytid beetles, *Xylosandrus* spp., attack the main stem and branches. Fungus mycellium growth can extend terminally and basally from the beetle gallery in the mango tree and can kill the affected branches. The insects prefer trees that have been weakened by pathogens, wind, etc., but after a population has been established in one orchard the infestation spreads to healthy trees.

Mealybugs

The citrus mealybug may infest fruit and cause irregular spotting.

Scales

Several kinds including lesser snow, coconut, pyriform, mango shield, oleander, acuminate, false oleander scale, Florida wax, Florida red and dictyospermum may infest mango. These scales are found on the upper or lower surfaces of leaves and also on fruits.

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Infestations of the mango scale, *Radionaspis indica* and plumose scale, *Morganella longispina* (Morgan) commonly occur on the trunk, branches and buds. Severe infestations can include crackling of the bark, exudation of sap and decline of upper branches.

Control. Check trees and, if needed, apply the following in 100 gallons of water: 1/2 - 1 pint Supracide + 0.5% oil per acre (false oleander scale).

Spider Mites

The avocado red mite and the mango bud mite are serious mango problems.

The mango bud mite, *Aceria mangiferae* (Sayed) causes proliferation of stems at the terminal branch. This symptom is known as witches broom. Young trees can be stunted if severely attacked during several consecutive seasons by this mite.

The avocado red mite is a common pest of mango in Florida. Feeding is first confined to the upper surface of mango leaves; it is found first along the midrib, then along secondary leaf veins. The areas along the veins become reddish-brown and during heavy infestations can be covered with mite's cast skins. Damage to the leaf area is regularly observed from October through February, causing up to 30% reduction of photosynthetic activity of the leaves. This mite is an occasional pest in some orchards and is seldom observed in others. Periodic inspections are recommended during December, January and February. Control measures may be started when the population reaches 6 or more mites per leaf.

Life Cycle. The eggs are spherical, stalked and adults have a pinkish color in their middle area with many purplish-brown blotches. The duration of the life stages can last from 14 to 15 days. Females are capable of laying 40 to 50 eggs during their life span.

Control. Few miticides are registered for use on mango. Apply sulfur dust, or spray with sulfur using 10 pounds of wettable sulfur per 100 gallons of water. Insecticidal soap and Pyrellin are also registered.

Thrips

In Florida, the thrips complex consisting of *Frankliniella bispinosa* (Morgan) and *F. kelliae* (Sakimura) is the most frequently observed blossom pest on flowers. It causes damage by ovipositing in the panicle and feeding on the floral nectaries and anthers, which may result in premature loss of pollen. Yield reduction might occur if thrips densities reach more than 400 thrips per panicle. These thrips are light-yellowish and appear commonly during the dry season (January to April).

The red banded thrips, *Selenothrips rubrocinctus* (Giard) feed on the underside of the leaves, causing necrosis and subsequent leaf drop. Adult thrips are dark-bodied with red band on the abdomen. The immature stages are light orange and red.

Whiteflies/Blackflies

The whiteflies/blackflies suck cell sap from leaves, which wilt when whitefly populations are high. High infestations can almost blacken entire trees, reducing photosynthetic efficiency and causing defoliation. A number of parasitoids, i.e., *Encarsia* spp., attack immature stages and provide good control.

Notes

Pyrellin (pyrethrin + rotenone) is labeled on mangos for aphids, caterpillars, leafhoppers, mites, thrips, weevils and whiteflies. Use 1 - 2 pts/acre. It can be used until harvest.

Table 1. Insecticides registered for mango in Florida.

Chemical Name	Brand Name(s)	Pest(s) Controlled
Azadirachtin	Align, Azatin	general insecticide
Bacillus thuringiensis	Dipel, others	lepidoptera larvae
Beauveria bassiana	Mycotrol	aphids, mealybugs, thrips, others
Bifenazate	Floramite[1]	mites
Bifenthrin	Talstar[1]	various insects, mites
Fenoxycarb	Logic[1]	ants
Fenpropathrin	Tame[2]	various insects, mites
Harpin	Messenger	general plant disease and insect management
Heythiazox	Savey[2]	various insects, mites
Horticultural Oils (various refined)	Sunspray, citrus spray oil, crop oil, FC 435-66, FC 455-88, others	various aphids, mites, scales
Hydramethylnon	Amdro[1]	ants
Imidacloprid	Provado	thrips
Kaolin (clay)	Surround	barrier and irritant to various insects
Malathion	Malathion	thrips, scales
Methidathion	Supracide	scales
Methoxyfenozide	Intrepid	lepidoptera larvae
Myrothecium verruearia	DiTera	nematodes
Potassium salts of fatty acids	Safer Soap	aphids, lace bugs, mealy bugs, spidermites, others
Pymetrozine	Endeavor[2]	aphids, whiteflies
Pyrethrin + rotenone	Pyrellin	aphids, lepidoptera, thrips
Pyrethrins	Pyrenone	aphids, lepidoptera, mites, thrips
Pyriproxyfen	Esteem ant bait	ants
Pyriproxyfen	Knack, Esteem	scales
S-methoprene	Extinguish	ants
Spinosad	SpinTor 2SC	lepidoptera larvae, thrips, mirids
Sulfur	Sulfur 6L, Sulfur Flowable, Thiolux	mites

[1] For use with non-bearing trees only.
[2] For nursery/nonbearing trees only.