



UNIVERSITY OF  
FLORIDA

IFAS EXTENSION

## PINK HIBISCUS MEALYBUG MANAGEMENT

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The Pink hibiscus mealybug or PHM is a pest that has devastated agriculture in many parts of the world. If left uncontrolled, it will kill plants and even trees. Eradication is impossible! Our management options include the use of chemical and biological controls.

**Pink Hibiscus. *Maconellicoccus hirsutus* (Green), Pseudococcidae, HOMOPTERA**

The female Pink hibiscus mealybug (PHM) has no wings and is covered with a very light dusting of white wax. A young crawlers and adult females are pink in color and the mature female is much darker pink to mahogany in color. Females are oval in shape (ca. 3 mm long and 1.5 mm wide). Males are winged and have two long waxy tails and fly. There is no waxy fringe that protrudes from the sides of the body as seen in many other mealybug species. The male is small but with its wings and tail filaments, it appears to be 4.5 mm long. The male does not feed. The mated female lays anywhere from 84 to 654 oblong, pink eggs in a dense, fluffy, white ovisac. The crawler is oval and pink. Female nymphs are just miniature versions of the larger adult females. Male nymphs are narrower and often occur in a cocoon.

The male has four instars of  $6.60 \pm 0.5$ ,  $6.51 \pm 0.51$ , 1.0 and  $5.59 \pm 0.69$  days each. At the end of the second instar the male produces a cottony cocoon. The female has three instars of  $6.71 \pm 0.47$ ,  $6.55 \pm 0.52$ , and  $7.9 \pm 0.79$  days each.

PHM is probably native to southern Asia but it has now spread throughout much of the world. They have been collected more than 200 genera of plants in 70 different families including many that are economically important. The citrus mealybug has been recognized as a pest of citrus and ornamental

plants in Europe since 1813 (where it is called the greenhouse mealybug) and in the United States since 1879. Female mealybugs do not fly but they can crawl short distances and the crawlers can be blown about. Males are small, winged insects. After mating, each female lays hundreds of eggs. The eggs hatch and crawlers look for a place to settle and feed. They seem to prefer sheltered areas.

Biological control offers the safest, most economical and long term solution to this problem in non-commercial areas such as the urban environment.

This strategy relies on producing sufficient numbers of tiny wasps (parasitoids) that attack and kill the PHM. These wasps lay their eggs inside individual mealybugs. When the eggs hatch, the immature stage of the "parasitoid" will feed on the mealybug from the inside. After 2-3 weeks an adult wasp will emerge, find a mate and then start to lay her eggs in many more mealybugs.

These wasps DO NOT ATTACK plants, other animals or people. In fact, they don't even attack other mealybugs. They are so small most people will never see them.

The problem with this system is that it takes time for the natural enemies to build up sufficient numbers to reduce the mealybug population to a tolerable level. Secondly, the mealybug is never eradicated. The mealybug and parasite densities will oscillate. In Hawaii, the densities are very low and this mealybug is not considered a significant pest. USDA expects the same thing to eventually occur in Florida.

USDA-APHIS and the Florida Department of Agriculture (DPI) have a limited supply of parasitoids to release. Therefore, it will take time for wasps to reach densities high enough to reduce the mealybug populations to non-damaging levels.

### **COMMERCIAL TACTICS**

Commercial growers in the infested areas should employ good IPM practices: sanitation, scouting and prevention. Sanitation will entail good weed and brush management in and around your nursery. You may consider working with your immediate neighbors to remove, replace or manage plants that are highly susceptible to infestation by PHM. Growers must prevent the movement of potentially infested plant material into their nursery with thorough inspection. If material is obtained from outside sources, it is highly recommended that it be treated and quarantined for at least a week. In general, I don't recommend preventative pesticide applications but in the infested area it is warranted at least for the high risk crops like hibiscus.

**DO NOT CONSIDER BIOLOGICAL CONTROL as a management option.**

### **IF FOUND IN A NURSERY**

If the mealybug is found within a nursery, the facility will be quarantined, infested plants destroyed and the grower will be required to make specific pesticide application.

The quarantine treatments are required and must be followed exactly. The preventative treatments listed below should be considered as suggestions. When designing a preventative spray program for PHM, any of the materials listed in the table can also be utilized. Label instructions must be followed explicitly. The frequency of the applications will be based on how fast new unprotected foliage is produced, label restrictions and the grower's particular situation. With very fast growing plants, you may have to apply materials as often as every 2 weeks. **YOUR UNIVERSITY OF FLORIDA COUNTY EXTENSION PERSONNEL CAN HELP! PLEASE CONTACT THEM FOR ADDITIONAL GUIDANCE.**

Visit the PHM website or subscribe to the PHM alert system:

[www.mrec.ifas.ufl.edu/lso/PinkMealybug.htm](http://www.mrec.ifas.ufl.edu/lso/PinkMealybug.htm)

PHM alert:

[www.mrec.ifas.ufl.edu/lso/pesta/rt/PINKMEALYBUG-L.htm](http://www.mrec.ifas.ufl.edu/lso/pesta/rt/PINKMEALYBUG-L.htm)

# PINK HIBISCUS MEALY BUG CONTROL STRATEGIES CURRENT CHEMICAL CONTROL RECOMMENDATIONS

January 11, 2005

The following list of recommendations by the Florida Cooperative Extension Service comprises products that may be effective in treating Pink Hibiscus Mealybug (*Maconellicoccus hirsutis*) in nurseries or stock dealers. Additional materials will be added as available. For additional product information, label rates or guidelines for application, contact the local cooperative extension office listed below.

## For Quarantine Treatments:

Chemical	Application	Rate	Interval	Comments
Imidacloprid (such as Marathon) Dinotefuran (such as Safari) Thiamethoxam (such as Flagship)	Soil Drench	See Label Rates	Initial Treatment	Soil drench must be followed by a foliar application of either Bifenthrin, Chlorpyrifos or Acephate
Bifenthrin (such as Talstar)	Foliar Application	See Label Rates	Following Imidacloprid treatment	Apply with organosilicate surfactant such as CapSil, Silwet or Sylgard. Follow up treatments as needed.
Chlorpyrifos (such as DuraGuard ME)	Foliar Application	See Label Rates	Following Imidacloprid treatment	Follow up treatments as needed.
Acephate (such as Acephate, Orthene)	Foliar Application	See Label Rates	Following Imidacloprid treatment	May be applied in conjunction with bifenthrin unless phytotoxicity prohibits.

## For Preventative/Prophylactic Treatments:

Chemical	Application	Rate	Interval	Comments
Acetamiprid (such as Tristar)	Foliar Application	See Label Rates	As needed	Apply with organosilicate surfactant such as CapSil, Silwet or Sylgard. Follow up treatments as needed.
Chlorpyrifos (such as DuraGuard ME)	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.
Acephate (such as Acephate, Orthene)	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.
Bifenthrin (such as Talstar)	Foliar Application	See Label Rates	As needed	Apply with organosilicate surfactant such as CapSil, Silwet or Sylgard. Follow up treatments as needed.
Buprofezin (such as Talus)	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.
Pyrproxyfen (such as Distance)	Foliar Application	See Label Rates	As needed	Apply with organosilicate surfactant such as CapSil, Silwet or Sylgard. Follow up treatments as needed.
Pesticidal Oils	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.
Insecticidal Soaps	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.
Imidacloprid + Cyfluthrin (such as Discus)	Foliar Application	See Label Rates	As needed	Follow up treatments as needed.

Note: Limited information is available concerning phytotoxicity of these products. Test on a few plants before application or consult the Cooperative Extension Agent. **When using new materials, phytotoxicity trials should always be conducted in your nursery under your specific conditions!** The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication does not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label. Use pesticides safely. Read and follow directions on the manufacturer's label.