

# Snail Management in the Nursery with an Emphasis on Giant African Land Snail



Photo Credit: A. Derksen, FL Cooperative Agriculture Pest Survey Program

Snails can be found in many habitats and can sometimes be pests not only in our landscapes but can be highly detrimental to plants in production. In Florida there are numerous native and introduced snail species. Most land snails are not pests. They feed on algae and fungi; a few are predatory. Some tree snails are considered endangered and are protected. However, there are several species that are pests and require management, but it is imperative that the snail is identified as a pest before treatments are initiated.

Most recently, one of the worst snail pests in the world, the giant African land snail, was found in Miami-Dade County. It has been observed to feed on more than 500 different plants and also presents a human health hazard because it can transmit disease organisms to plants and animals, including humans. Most of the feeding damage is expected to be on vegetables, flowers and other ornamental plants and to annual weeds. It also has an affinity for substrates with calcium for shell building and can often be found on the side of concrete buildings or building materials (<http://edis.ifas.ufl.edu/in904>).

## Snail Management

To date, there is little information available on the management of the giant African land snail. However, there is information available for general snail management, but many of the methods have not been proven on a snail of this size. Growers in south Florida and particularly in Miami Dade County should be on the outlook for the giant African land snail. Steps can be taken to minimize the likelihood of snail introductions and establishment in nurseries. Plants and other articles coming into the nursery should be inspected for snails and initially segregated. Growers should establish a snail identification/education program for all employees and an ongoing monitoring program so that any suspect snail can be identified and steps taken to potentially eradicate or control snail infestations as early as possible.

Snails are generally active at night and on cloudy, rainy days. They seek shaded, sheltered resting locations with high humidity when general environmental conditions are hot and dry. In south Florida where much of the year is humid or wet, snails can be found anywhere. As we move into the dryer, winter months, the snails may seek moist areas or areas under irrigation. When conditions become unfavorable, snails can become inactive or go into a “resting” period called aestivation in which they withdraw into their shell and do not feed. Control is typically not possible if snails are in this “resting” condition.

### 1. **M**onitor

- a. At night, search for presence of the snails.
- b. During the day, search for snail trails and damage
- c. Pay particular attention to moist areas or very susceptible plants such as seedlings or more succulent plants.
- d. Trapping - various types of traps or attractive items can be used to lure snails. Banana and papaya are particularly attractive to the giant African land snail and can be used to catch them. Most traps only work for snails in the immediate vicinity.
- e. While monitoring, handpicking snails will help. If done thoroughly and on a regular basis it can be an effective control method. Gloves should always be worn when handling snails.

### 2. **U**nfriendly snail environment – Modify your environment to reduce the number of snails

- a. Remove hiding places such as boards, stones, debris, weedy areas, leafy branches growing close to the ground, dense ground covers, etc.
- b. If possible, create a less humid environment (i.e. less irrigation; drip irrigation versus sprinkler)
- c. Place copper foil or screening on benches or around areas for protection
- d. Dry, abrasive materials such as diatomaceous earth can also be used as a barrier, however, once wet it no longer works. This method may not be suitable for some situations but should be considered if feasible and if the material can be kept dry.

### 3. **T**reatment

- a. Iron Phosphate (Sluggo; Escar-Go; numerous over-the-counter products)
  - i. Product must be ingested; snails are sensitive to iron toxicity
  - ii. Causes snails to stop feeding.
  - iii. Safe for use around animals.
- b. Metaldehyde baits (Deadline; Trails End; Slugfest; several over-the-counter products) - Probably most widely used and has been shown to be efficacious against many snail pests.
  - i. Toxic both by contact and ingestion
  - ii. Breaks down rapidly in moisture and sunlight

- iii. Poisonous to pets and wildlife; Use care when using, however, these products are not restricted use and are available in professional and over-the-counter products.
  - iv. Different formulations(pellets, mini-pellets, coarse meal, and liquids); some formulations are combined with carbaryl).
  - v. Most effective under warm temperatures; low humidity.
  - vi. Sometimes snails can recover after ingestion particularly if they can get to water or moist conditions.
- c. Methiocarb (Carbamate)
- i. Sold as a spray and bait formulation (Mesurol 75WP, Mesurol Pro).
  - ii. Sometimes used in combination with metaldehyde.
  - iii. Less effective under cool, wet conditions.
  - iv. Fast acting; stomach and contact poison.
  - v. Restricted use pesticide.
- d. Borates – Baits containing boric acid.
- i. Inhibit respiration.
  - ii. No resistance to these products is likely to occur.
  - iii. More effective against slugs than snails but may be effective against giant African land snail.
- e. Repellents – These products do not control the pest but help to keep them out of certain areas much the same as placing copper barriers. Examples include garlic extract, cinnamon oil and Bordeaux mixture (copper sulfate and lime). Other products are being reviewed, but often these may not be feasible in a production environment.

**NOTE:** When using baits, it is best to use after watering or irrigation, however, try to place the bait in drier areas. Do not water or irrigate after applying a bait.

**NOTE:** Use of molluscicides should be in accordance with the label instructions. It is important that identification of the target snail is determined before application. Florida has many endangered and protected snails that could be harmed in improper use of pesticides.

- f. Natural Enemies – In general there are numerous natural enemies that feed on snails which include ground beetles, pathogens, snakes, toads, turtles, and birds, but most do not usually provide satisfactory control. However, there are no proven, commercially available natural enemies for snail control currently available in the U.S. In California, the use of a predatory snail was approved to use in citrus orchards for brown citrus snail. The use of the predatory snail was combined with several other methods to manage the snail.

Approaching snail management in an integrated approach will likely be necessary. In California, a successful snail management program for brown citrus snail included the release of a predatory snail, use of copper bands, pruning, applications of copper sulfate and iron phosphate, metaldehyde and a foliar application of phosmet which was allowed under a special exemption. In the future, the development of a specific management program for the giant African land snail may be necessary. At this time, it is imperative to monitor for these snails as they are being found at numerous locations within Miami-Dade County and to manage any pest snail problems within your production area.

### **Information**

For more information contact:

Miami-Dade Cooperative Extension Service

Tel: 305-248-3311

Website: <http://miami-dade.ifas.ufl.edu/>

Florida Department of Agriculture & Consumer Services'

Division of Plant Industry

Helpline Phone: (888) 397-1517

[www.freshfromflorida.com/pi](http://www.freshfromflorida.com/pi)

**The USDA and Florida Department of Agriculture and Consumer Services are currently carrying out a giant African land snail eradication program in Miami Dade County, and will come out and identify and remove collected snails. They can be reached at Help Line 888-397-1517.**

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