GENERAL INFORMATION

The European brown snail has been widely distributed throughout the world, either accidentally on infested plants and commodities or purposely for human consumption. It was first discovered in the State at Waimea, island of Hawaii in 1976. Attempts to eradicate the snail infestation at Waimea by the Hawaii Department of Agriculture were unsuccessful. Subsequently, the snail was found in Honokaa, also on the island of Hawaii in 1980, and most recently in Kula, Maui in 1981.

DESCRIPTION

The shell of this snail (cover photo) is grayish-yellow with chestnut brown spiral bands which are interrupted by yellow flecks or streaks. An adult shell usually measures from 1 to 1 ¼ inches in diameter.

BIOLOGY

Each snail has the capability to produce eggs since the reproductive organs of both sexes occur in the same individual. However, mating is required to produce viable eggs. Between 3 to 6 days after mating, white spherical eggs about 1/8 inch in diameter are deposited in a nest constructed by the snail in loose damp soil. An egg mass contains an average of 86 eggs. A newly hatched snail remains in the nest from 2 to 4 days and then works its way to the surface. When food and moisture are abundant, the snail can mature in 4 months, but under harsher conditions, it may take up to 2 years to mature. (Fig. 1 shows the various life stages of the snail.)

HABITS

The European brown snail is active at night and on dark, cloudy days. During the day, it normally rests in places protected from sun and heat — under rubble or trash, lumber, firewood, and in compost piles or shaded parts of plants.

The snail needs moisture to thrive, yet it is able to survive under severe drought and heat conditions. The snail can seal its shell opening with a white parchment-like membrane and remain dormant for up to 4 years.

DAMAGE

Besides feeding on a wide variety of living plants, the snail feeds extensively on certain fungi and decaying plant matter. It can cause serious losses to cabbage, lettuce, tomato, citrus, avocado, and other fruits and
vegetables. Over 40 kinds of vegetables, flowers, trees, and shrubs have been recorded as hosts of the snail.

ECONOMIC STATUS IN HAWAII

Through the Department of Agriculture’s ongoing containment program, the snail has, thus far, been confined to the residential communities of Honokaa, Waimea, and Kula. Therefore, its destructive capabilities to agriculture have not been demonstrated. However, because it has the potential of becoming a serious pest of agricultural crops in Hawaii, the Department is continuing its containment program, utilizing chemical baits, traps, and hand picking methods to minimize the movement of the snail into prime agricultural lands. Residents of the State, especially those residing on Maui and Hawaii, are asked to be on the lookout for this pest and to call our resident agricultural specialist on their respective islands if they see this snail. For those who live in one of the three communities in which the snail is currently found and have infestations on their premises, the following section on control methods should be helpful.

CONTROL METHODS

An effective control program begins with proper sanitation. Removing boards, stones, and other debris that serve as shelters will help to control snail populations. Dense ground covers, such as pickleweed (akulikuli), are ideal hiding places for the snail. For home gardeners it is advisable to place vegetable gardens and other susceptible plants as far away as possible from areas with extensive ground cover.

1. Handpicking - Handpicking is time consuming but can be very effective in controlling the snail. It should be done regularly to destroy successive generations of the snail. To draw out the snail, water the yard in the early evening. After dark the snail will be out and can be easily picked up. A good way to destroy the snail is to place it in a plastic bag, crush the bag and dispose of it in the trash.

2. Traps - The snail seeking cover during the day can be trapped under boards or flower pots placed throughout the garden and yard. A board about 10 inches wide and 15 inches long, raised off the ground by 1-inch risers (Fig. 2) make an excellent trap. Several of these traps can easily be constructed and placed around the yard, in areas that offer shade and moisture. These traps should be checked everyday and any snail found should
be removed and disposed.

3. Chemical baits - After good sanitation techniques have been implemented, chemical baits can be effective in reducing snail populations. The European brown snail can be controlled using commercial bait containing metaldehyde or mesurol. Bait containing metaldehyde has been in use for many years and is very effective in dry or warm weather. Although some ground moisture is necessary to make baiting more effective, metaldehyde becomes less effective during rainy seasons or in cooler, foggy areas, because under such conditions the snail may recover after eating the bait. The advantage of using metaldehyde is that it can be used around vegetable crops as long as edible plant parts are not contaminated.

Baits containing mesurol (methiocarb) have become available recently. Unlike metaldehyde, they are highly effective under both dry and moist conditions. However, these baits have not been approved for use around vegetables. Extreme care must be exercised in using these baits only in areas permissible under label directions.

4. Some Tips on the Use of Baits -
   a. If the ground is not already moist, wet down the area before applying the bait to draw out the snail and make the bait more attractive.
   b. Apply the bait in the late afternoon or evening and repeat applications two to three times at about 2-week intervals.
   c. Always scatter the bait lightly over the area to be treated to avoid accidental ingestion by children or animals.
   d. Do not water heavily for at least 3 or 4 days after bait placement.
   e. Store the bait safely in a dry place where they cannot be reached and eaten by children or pets.
   f. READ AND FOLLOW ALL DIRECTIONS GIVEN ON THE MANUFACTURER’S LABEL.

ADDITIONAL INFORMATION

For further information on the European brown snail, please call our resident specialist on your respective islands:

Kauai 245-6192
Oahu 548-7120 or 548-7172
Maui 877-7801 or 877-7802
Hawaii 961-7417 or 961-7446

Cover photograph by Reynold Ito
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