

# Baits to Control Subterranean Termites: The Sentricon System

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**Subterranean termites** are social insects who usually live in underground colonies. Colonies consist of a queen who lays eggs, a king who fertilizes the eggs, soldiers who protect the colony, and workers who tend to the immature termites, the queen, and search for food. Subterranean termite workers forage through the ground in tunnels they create looking for sources of cellulose (wood and wood products). Cellulose is often found in high concentrations in and around homes and other structures.

The traditional method of treating subterranean termites is to place an insecticide barrier in the ground between the structure and the termite colony. Termite workers that tunnel through treated areas either contact the insecticide and are killed, or are repelled by the chemical. As some workers die in the insecticide treated area, others subsequently avoid it and the colony, as a whole, is not greatly harmed by the chemical barrier.

Failures of soil insecticides applied to protect structures from subterranean termite damage are occasionally reported. Failures can occur when termites find breaks in the chemical barrier, or when the insecticide degrades. Termites can then enter the structure and consume the wood therein. Problems can also arise from changes in building construction and difficulties in properly applying the insecticide. After a structure is built, it becomes difficult to achieve a continuous horizontal chemical barrier beneath it. Thus, treatment in existing structures may require the drilling of holes for injection of toxicant into critical areas. In addition, some people are concerned about the risks involved with potential exposure to insecticides and would like to minimize their use in and around their home.

The use of baits is a new concept in the control of subterranean termites. Termite baiting is designed to selectively reduce or eliminate termite colonies without the intensive use of insecticides. Several termite baits are being developed, and, at this time two are currently on the market. This is the first in a series of publications targeting each of the different termite baiting systems available. This publication focuses on the Sentricon® System.

The **Sentricon® System** was developed by University of Florida entomologist Nan-Yao Su and is produced by DowElanco. It is a low impact approach to subterranean termite control, in that it requires no broadcast insecticide application, and requires no drilling into floors or foundations. The Sentricon System utilizes a three-stage approach. First termite activity is monitored, and then they are baited. After baiting, termite activity is once again monitored. The Sentricon® System is available only through authorized pest control companies.

**Inspection:** The first step in the use of Sentricon® is inspection. Structures are thoroughly inspected for termites and locations where they are likely to enter. Sites such as crawl spaces, fences, sheds,

decking, landscape timbers, and landscape plantings are noted as well as areas with active termite infestations, wood on soil contact, and damage. Additional problem areas such as high moisture areas (air conditioning drip lines, gutter downspout discharge areas, and sprinklers) and loose wood sources (stumps, scrap lumber, firewood) are also noted. These areas are likely locations to attract and support foraging termites.

**Placement of monitoring stations:** The pest control operator installing the Sentricon® System first monitors termites before baiting is begun. Generally, monitoring stations are placed about every 10 feet around the perimeter of the structure. Also, critical and termite conducive areas will usually have a monitoring station placed nearby. Monitoring stations are installed by drilling a hole in the soil (2 inches in diameter, about 12 inches deep). Stations are inserted into the soil until the soil cover is flush with the ground. The location of each station is marked with a site map so it can be found for monitoring at monthly intervals.

Two untreated monitoring devices are placed in each station and usually inspected at monthly intervals. Monitoring devices are wooden slats placed within a slotted, plastic housing. When inspected, the station housing locking lid is removed with a special key, and the monitoring devices are checked for live termites, or signs of feeding. If no termites are found, the station is closed and inspected at a later date. Occasionally, stations are initially placed in locations, such as water logged areas, that require them to later be relocated. Depending on many factors, it may take a few weeks to several months for termites to enter the stations and begin to feed on the monitoring devices.

When termites have been found in a monitoring device it is time to begin baiting.

**Baiting:** A bait tube consists of a cylinder that fits within the station housing. It is activated by the addition of a little water and the termites collected from the monitoring devices are placed within the bait tube. The bait tube is capped and placed in the housing. Termites placed in the bait tube have to feed on the bait to escape and return to the colony. During their return to the colony, they leave a chemically scented trail which leads more termites to the bait. This process is called "self-recruitment". Greater recruitment results in more rapid consumption of the bait.

Additional stations containing monitoring devices may be installed next to baited stations. These are called auxiliary stations. These are regularly inspected and when "hit" by termites, are transferred to baiting mode.

In most cases, bait tubes are inspected monthly. Large, active colonies will consume bait faster and bait tubes will be inspected more frequently. Inspection ensures that bait is always available for the termites to consume. If for some reason termites abandon a bait tube, monitoring devices are inserted back into the housing.

Bait consumed by termite workers is carried to the colony and fed to other individuals. Therefore, only slow acting bait ingredients are effective for termite control. The bait used in the Sentricon® System contains a slow acting compound that affects the normal growth and development of termites...an insect growth regulator called hexaflumuron. Hexaflumuron, as well as other insect growth regulators are effective against many insects in extremely low doses but have very little toxicity to humans, pets, or wildlife. The effect of hexaflumuron on termite colonies is gradual. As termites develop, more and more members of the colony die, the colony cannot sustain itself and it is eventually eliminated. It may take two to eight months after baiting to eliminate a termite colony.

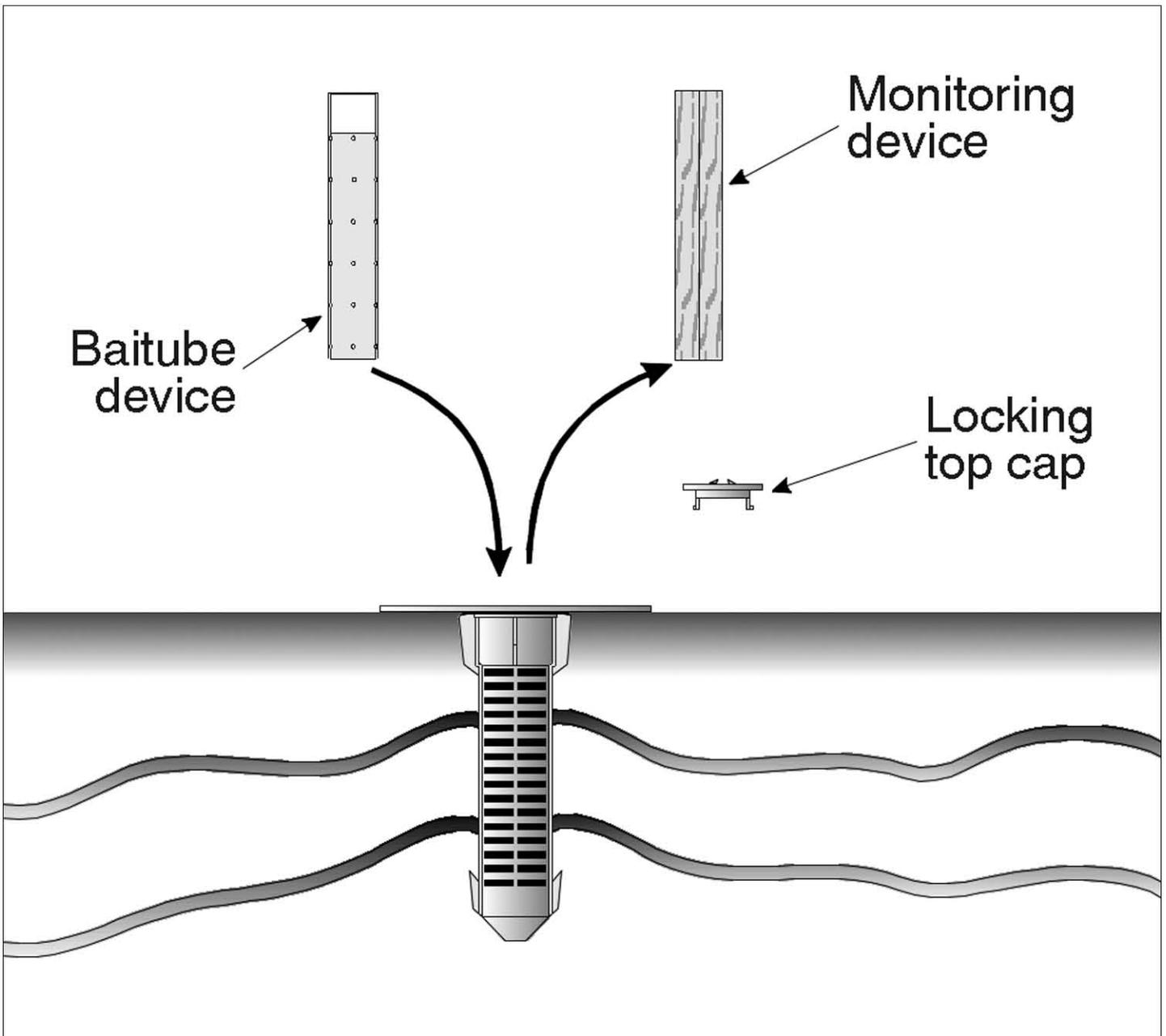
Because baits are slow acting, heavy subterranean termite infestations may cause considerable damage before colony elimination. In these cases, it may be necessary to protect the structure with traditional insecticides until the colony is eliminated.

**Baits work best when competing food sources are minimized. Therefore, baits are most effective when used as part of a total integrated pest management program where sanitation (removal of scrap wood, stumps, and other materials containing cellulose) and prevention (proper construction practices to minimize termite access to buildings) are emphasized.**

**After the colony has been eliminated, bait tubes are removed and replaced with monitoring devices. Inspection will then continue on a regular basis and new infestations can be detected.**



Eastern subterranean termite workers.



Sentricon System monitoring and bait devices