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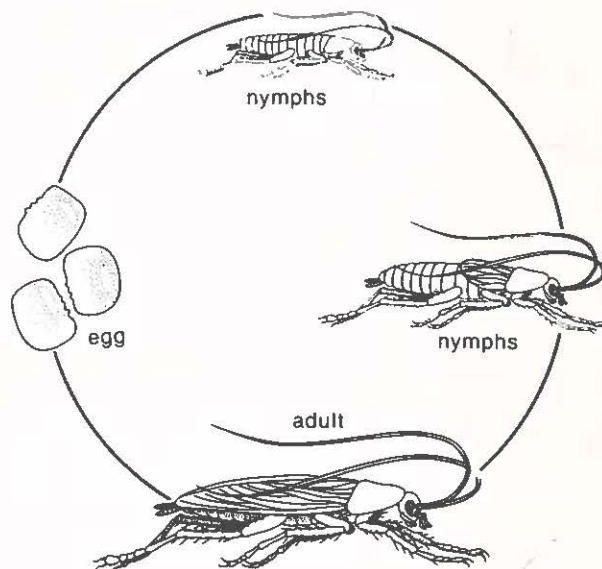
HOUSEHOLD COCKROACH CONTROL

Cockroaches are serious pests in many households, regardless of the socio-economic level. These insects are perceived by homeowners as indicators of unclean conditions, vectors of disease, and contaminators of food. Controlling cockroaches in the U.S. is big business; approximately \$350 million is spent yearly on aerosol sprays for the control of household cockroach infestations! The use of aerosols for controlling German cockroaches, the most common household species, can be effective if the spray can and its contents are used properly. Aerosol insecticides are not intended to be used as a "space spray", i.e., the aerosol should not be used to fog a room--regardless of how well it produces a fine mist! The chemical in the aerosol will be effective in controlling cockroaches when it is applied to a surface that is close to the

hiding places of cockroaches, and the cockroach walks over the treated surface several times. It is the residual activity of the spray that will provide the control--it is not necessary to contact the cockroach with the spray! The residual life of an insecticide is about 10 days on the usual substrates and under the usual temperature and humidity conditions. Application of the spray to the cracks and crevices around the kitchen cabinets, under the sink in the kitchen and pantry, and especially around the bottom and back of the refrigerator will provide good control. Spray should not be directed to counter tops and shelves, or any place food is prepared or stored. Sprays should not be used around a gas stove, because of the danger of fire or explosion (although that may get rid of the cockroaches!).



INSECT NOTES



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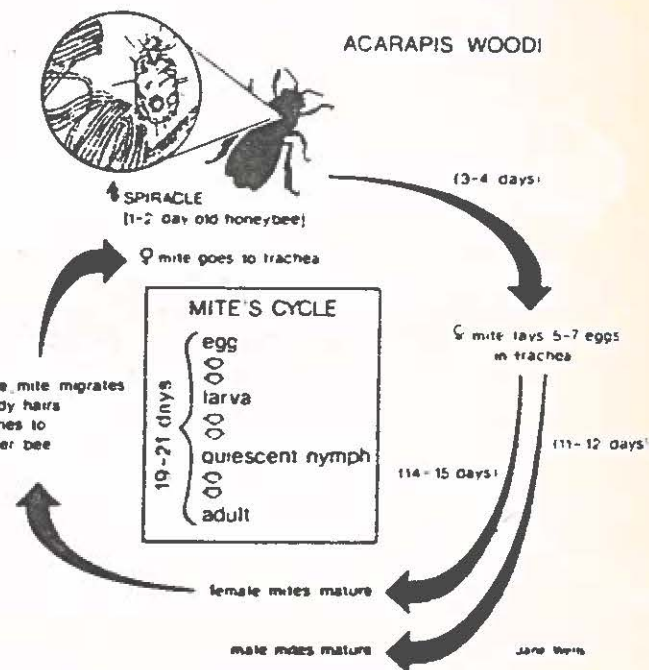
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HONEY BEE TRACHAEL MITE

The tracheal mite is a parasite of honey bees recently introduced in the U.S. It was first discovered in Texas in the Summer of 1984 and since that time has been discovered in over 20 states including Virginia. Acarine disease or acariosis is a disease of only adult bees caused by the endoparasitic mite, Acarapis woodi. This mite lives primarily in the anterior thoracic trachea. There are no symptoms that are specific to this disease. Therefore, a positive acarine diagnosis can only be made in the laboratory with the aid of a microscope, after the careful dissection of individual bees.

Biology

The general biology of the honey bee tracheal mite under North American conditions is not well understood. The basic life cycle of this parasite is shown in the accompanying figure. The mites are transferred by direct contact between bees and only young bees are susceptible to infestations. Each developmental cycle of the mite requires from 19 - 21 days. The mite feeds by puncturing the tracheal wall and sucking up hemolymph (blood). The feeding activity may stress the bee, but the mites do not appear to transmit disease. Infested bees typically behave normally, but more overt symptoms have been described by some researchers; including the presence of crawling bees at or near the hive entrance that are unable to fly.



Life cycle of tracheal mite of honey bee.

Spread of the mite appears to be caused primarily by the activity of beekeepers; the dosmetic movement and management of bees represents the most important means of transmission. Natural dispersion (ie. drifting of bees between apiaries) does not appear to be a very significant means by which the honey bee tracheal mite has been spread.

The levels of infestation and therefore the economic importance of the honey bee tracheal mite in North America is greater than what would be predicted from published reports concerning this mite from other parts of the world. The highest infestations are often found in late fall and early winter. Infestation levels as high as 40 - 50% of the adult population have been found in Virginia with other areas of the country reporting infestation levels exceeding 85%. High infestation levels undoubtedly will have some effect on colonies, particularly in the form of increasing stress which is always an important factor during the winter.

Potential Impact of the Tracheal Mite

Concern over the potential impact of the tracheal mite led to the organization of a scientific symposium in July of this year in Saint Paul, Minnesota. This meeting of scientists working on the tracheal mite problem has provided some interesting information on the status of the mite and its potential effects on the apiculture industry. Some of the major conclusions are summarized below.

First with regard to the economic impact of the mite the following conclusions were reached:

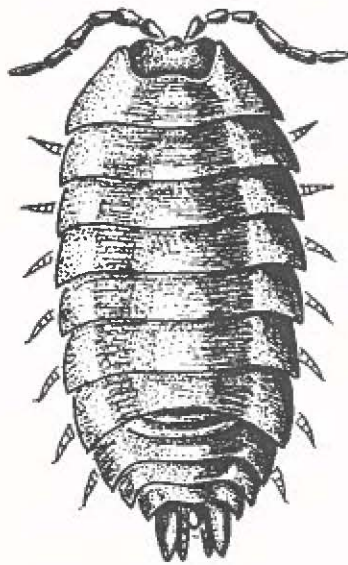
- 1) Low levels of colony infestation with honey bee tracheal mites probably cause no immediate economic damage.
- 2) High levels of colony infestation with honey bee tracheal mite can cause significant economic damage. The following examples were identified as potential problems:
 - a) decreased brood production
 - b) decreased honey production
 - c) increased winter mortality of colonies
 - d) increased winter mortality of individual bees
 - e) reduced spring build up of packages

These conclusions on the economic impact of this mite support recommendations to limit its spread at least until its biology is better studied and understood, and techniques for the control of this parasite have been developed. Some preliminary research studies indicate possibilities for the development of chemical control techniques, but no simple, effective techniques exist at this time. Along similar

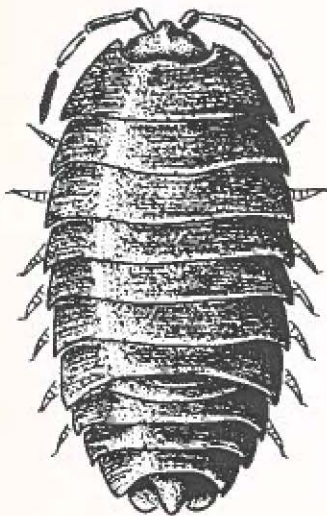
lines, better methods for the detection of this mite are needed since infested bees and/or colonies show no overt symptoms. Current research on chemical detection methods and serological techniques hold some promise for improvements in sampling procedures, but these are also not available at present.

INSECTS IN THE BASEMENT

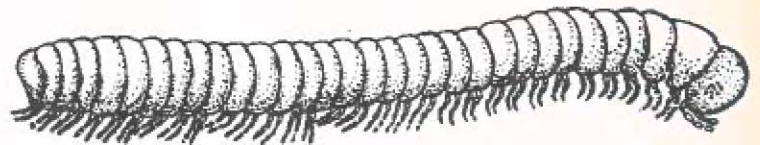
There are several insects and relatives to insects that are commonly encountered in damp basements in the fall. These critters include sowbugs, pillbugs, millipedes, and centipedes. Pillbugs, sowbugs, and millipedes feed on decaying vegetation. They may be attracted to organic matter in rich potting soils. Occasionally, they feed on vegetables stored in basements, especially if the vegetables have been damaged. Centipedes feed on live insects and other small animals; they do not damage plants. Controlling these pests should start with reducing the moisture and humidity in the basement, then the use of aerosols.



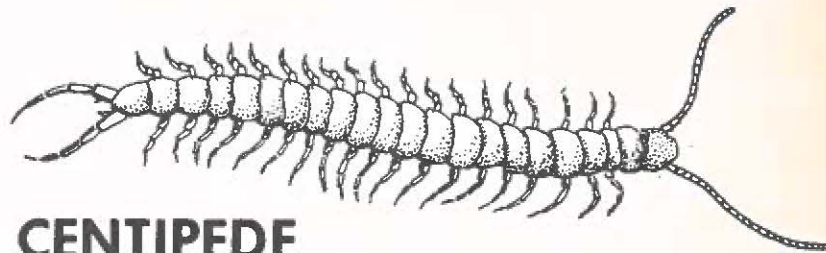
SOWBUG



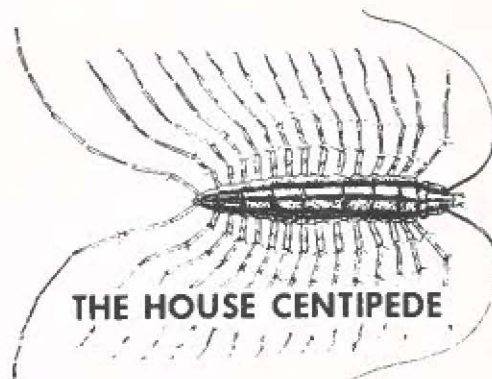
PILLBUG



MILLIPEDE



CENTIPEDE



THE HOUSE CENTIPEDE