
IPMINFO

Integrated Pest Management for the Home Environment

SOAP SPRAYS AS INSECTICIDES

Soaps have been used to combat pests for many decades, but their effectiveness as pesticides has been scientifically established only recently. Through experiments designed to test the potential for soap spray use on plants, soaps have demonstrated to be effective against many insect pests of plants as well as fleas, ticks, and lice on domestic animals.

Researchers have not yet determined exactly how soaps work in combating pests. Some soaps simply wash off the outer waxy coating of the insect's cuticle, destroying its watertight quality and causing the insect to dry up and die. Other soaps have additional insecticidal properties that may affect the nervous system. These soaps appear to have toxic effect only against plant-eating insects and thus may spare beneficial insects such as ladybird beetles (ladybugs), lacewings, and predatory mites. In addition, high pressure sprays may wash some insects off the plant, and other insects may be immobilized in soapy water, making them easier to rinse off the plants.

Soaps will kill many insect pests, including aphids, mealybugs, white flies, spittlebugs, rose slugs, and soft scale on most houseplants, ornamentals, and fruit trees. But because soaps have little or no residual action, sprays should be applied at regular intervals until the population is controlled or eliminated.

Two kinds of soaps are available for home use: commercial solutions such as Safer's Insecticidal Soap®, and those made at home with household products. To use an insecticidal soap, mix the concentrate with water as directed on the label. Wayne S. Moore and his Cooperative Extension colleagues at the University of California, Berkeley, reported that optimum control with minimum risk to plants could be achieved with a one- or two-percent solution of liquid dishwashing detergent, or about one to two tablespoons of detergent to a gallon of water (Cakufirbua Agriculture, June 1979). Solutions made with powdered or liquid laundry detergents and powdered dishwashing detergents were found to be too harsh to plants and are not recommended. You should be aware, however, that the effectiveness of sprays made from household products may be quite variable. Safer's is registered for use on both ornamentals and edible crops. The company also manufactures a pet soap for control of fleas, ticks, and lice on dogs, cats, and horses.

Apply the commercial or homemade solution with a plant mister, hose-end sprayer, pump spray bottle, or hand-pump compression sprayer. Wet foliage thoroughly, especially new growth and undersides of leaves, where insects may be hiding. For best control, wipe leaves with a cloth moistened with the solution, or immerse all foliage in the solution. To counteract any possible buildup of the soap or detergent in the soil of potted plants, immerse the container periodically in a pot of water for several minutes until air bubbles stop rising from the soil mix. After spraying, some plants may exhibit signs of phytotoxicity such as browning of the leaves in patches or along their margins in patches. Generally, plants whose leaves are not heavily waxed, such as maidenhair ferns, or those whose leaves are densely covered with fine hairs, such as geraniums, are most susceptible to burns. Safer's lists susceptible plants on the label. To mitigate possible damage resulting from the use of sprays made from household cleaning products, test-spray part of the plant, and carefully observe the sprayed area for signs of damage daily, for at least two weeks. If browning occurs, the solution may be too strong. Rinsing plants with water several hours after spraying may also mitigate the burning effect.

Soaps offer a safe, reliable, and environmentally sound way to control many insect pests on most houseplants, ornamentals, and fruit trees. However, like all household chemicals, soaps should be kept out of the reach of children, and directions for use should be carefully followed.

NOTE

To simplify information, trade names of products have been used. No endorsement of named products is intended nor is criticism implied of similar products which are not mentioned.