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Use of soaps and detergents for insect control in Colorado

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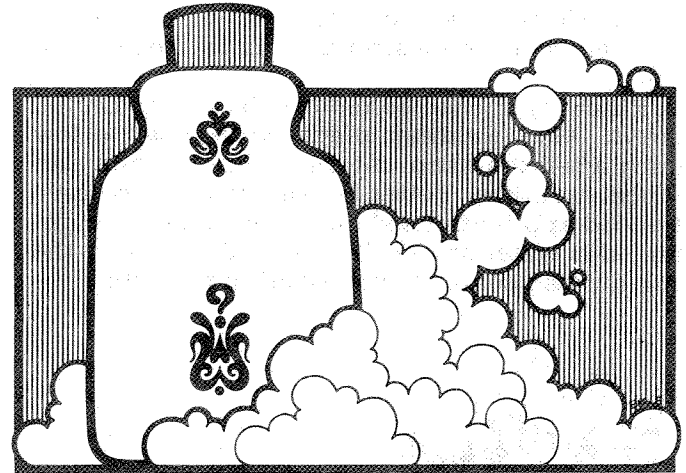
Quick Facts

Soaps can be used to control a wide range of Colorado plant pests. Small, soft-bodied insects such as aphids, psyllids, mealybugs, thrips, springtails and spider mites are best controlled with soaps.

Both commercial insecticidal soaps and dishwashing liquids are effective for insect control.

Soaps can injure many plants so a small area should always be tested with the soaps before spraying a large area.

Insects that move into houses can be controlled with sprays of laundry detergent (outside) or various spray-and-wash cleaners (inside).



Use on Plant Pests

Most research with insecticidal soaps and detergents has involved control of plant pests. In general, these sprays have been effective against small soft-bodied insects such as aphids, certain scales, psyllids, whiteflies, thrips, mealybugs and spider mites. Larger insects such as caterpillars, sawflies and beetle larvae have been less controlled. Beneficial insects such as ladybird beetles and lacewings are occasionally killed by a soap or detergent application but often survive well. In many cases, therefore, the soap/detergent sprays act as "selective" insecticides.

Soaps and detergents useful for insect control include commercial solutions as well as certain household products. At present, the primary commercial product available is Safer's Insecticidal Soap. Various liquid dishwashing detergents such as Ivory also have been effectively used for insect control in Colorado. In general, dishwashing liquids have been used as a 1 percent to 2½ percent solution, approximately 3 to 6 tablespoons per gallon of water. There is a range of insecticidal effectiveness and plant injury (phytotoxicity) potential among these household products. Laundry detergents and powdered dishwashing detergents generally are too harsh to use on plants without injury.

Soaps have been used effectively in insect control sprays for 200 years. There has been considerable increase in the use of these soap or detergent sprays. This renewed interest, in part, has resulted from a widespread desire for alternatives to synthetic organic insecticides. New insecticidal soap formulations and recent research into soaps for insect control have also increased interest in the use of these insecticides.

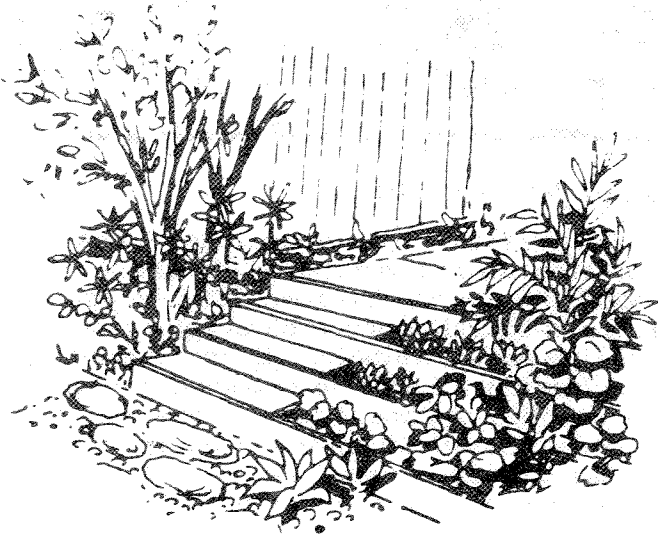
How soaps kill insects is still poorly understood. Presumably most activity results from removal of protective oils and waxy covering of the insect. As a result, soap-treated insects rapidly lose water and die. The speed with which some soaps and detergents kill insects also indicates some products may act directly on the insect nervous system.

Soap and detergent sprays act strictly as contact insecticides with little or no residual effect. The sprays must be applied directly to the insect, thoroughly covering to be effective.

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A serious drawback in the use of soaps or detergents on plants is the potential for phytotoxicity. Certain plants are very sensitive to these sprays and foliage can be seriously burned. Leaves with a very thin waxy covering or hairy leaves often are particularly sensitive to soap sprays. Other plants may show only slight injury such as stunting or reduced yield. Always test soap/detergent sprays on a small area first to check for phytotoxicity. The check should be made a few days before an extensive area is treated with a soap.

Plant injury can be reduced by using diluted sprays. Also, washing plants with water a few hours after the soap/detergent application can reduce leaf injury. Potted houseplants that receive repeated applications should periodically be immersed in water or heavily watered to remove the accumulated soap and detergent in the pots.



Because of the short residual action, repeated applications at relatively short intervals (four to seven days) may be required to control certain plant pests, such as spider mites. Also, application coverage must be thorough with complete wetting of the pest. This often involves spraying undersides of leaves and other protected sites.

Use on Household Insects

Many spray-and-wash household cleaners can be used for spot treatment of household insects. For example, Fantastik and 409 rapidly kill common household pests such as elm leaf beetles, sawtoothed grain beetles, clover mites, boxelder bugs and some spiders. Use caution with these products and read the label before use since they can cause injury to certain household surfaces.

Some household insects, most noticeably boxelder bugs, often mass on the outsides of houses before moving inside. Powdered laundry detergents used at a rate of one cup per gallon of water can rapidly kill these insects on the outside walls. As with other detergent sprays, there is no residual effect and care should be taken to avoid spraying sensitive plants.

Soaps and detergents can offer a relatively safe and easy means of controlling many insect pests. However, there are limitations and hazards with their use as with all pesticides. By understanding these limitations and following labelled instructions, these products can be effectively used.