

## Why Use Horticultural Oils?

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## Quick Facts...

- Certain oils, diluted with water and applied as sprays, can be effective controls of many plant pests.
- Horticultural oils are usually highly refined petroleum oils combined with an emulsifying agent. Some plant-derived oils also are used.
- Advantages of oils include safety, effectiveness and limited effects on beneficial insects.
- Do not use oils on certain sensitive plants. Plants under drought stress may have increased risk of injury.

Various oils have been used for centuries to control insect and mite pests. Oils remain an important tool to manage certain pest problems (e.g., scales, aphids, mites) on fruit trees, shade trees and woody ornamental plants. Several recently developed oils extend this usefulness to flowers, vegetables and other herbaceous plants. Oils also can control some plant diseases, such as powdery mildew. Oils used to protect plants have been called by many names, but perhaps horticultural oils best describes them.

Oils have different effects on pest insects. The most important is that they block the air holes (spiracles) through which insects breathe, causing them to die from asphyxiation. In some cases, oils also may act as poisons, interacting with the fatty acids of the insect and interfering with normal metabolism. Oils also may disrupt how an insect feeds, a feature that is particularly important in the transmission of some plant viruses by aphids.

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## Insect and Mite Control

Historically, the primary reason oils were developed was because of their effectiveness on otherwise hard-to-control pest problems on fruit trees. They were used as a dormant-season application (before bud swelling and bud break) to kill mites and insects, such as scales and aphids, that spent the winter on the plant. Dormant oil applications also control certain overwintered shade tree pests.

Recently, improvements in refining have produced oils with increased safety to plants and thus expanded their potential uses (Table 1). Summer or foliar treatments are now possible for a variety of pests during the growing season. Oils also can be mixed with other insecticides, providing a broader spectrum and greater persistence of control. Spider mites, whiteflies and young stages of scales are common pests that can be controlled by oils during the growing season.

Oils also are useful against powdery mildew. Diluted horticultural oils, often mixed with a small

amount of baking soda, can be an effective control for this common plant disease. The neem oil products have been effective against several types of powdery mildew and rust.

### **Some plant pests controlled by horticultural oils.**

#### Dormant Season Applications

- Aphids that curl leaves in spring
- Caterpillars that winter as eggs on the plant (leafrollers, tent caterpillars)
- Mites that winter on the plant (e.g., conifer-infesting species)
- Scale Insects (e.g., pine needle scale, striped pine scale, Kermes scale, cottony maple scale)

#### Summer/Foliar Applications

##### Insects and Mites

- Adelgids
- Aphids
- Eriophyid mites
- Leafhoppers
- Scale Insects
- Spider mites
- Whiteflies

##### Diseases

- Powdery mildew
- Some aphid-transmitted viruses