

# Horticultural Oil

(sometimes referred to as “Dormant Oil” especially when intended for late Winter/early Spring application)

## Key points

- Horticultural oil is a collective term for a group of oil-based products refined specifically for use on plants. **Don’t substitute** household cooking oils or other non-gardening oils because impurities from differences in refinement pose a greater risk of plant injury.
- Its primary function is to control soft-bodied insect or mite pests through direct contact with the spray. It has multiple modes of action, such as smothering and repelling. Some horticultural oil products are also labeled as a low-risk fungicide, such as for the suppression of powdery mildew, rust, and sooty mold.
- It is broad-spectrum in action, meaning that any insect contacted by the oil could be affected. Even so, it has a very limited residual activity, which is the length of time that the active ingredient retains its pest-impacting ability. This helps avoid harm to beneficial insects and other organisms.
- It’s possible to dilute a bottle of concentrate and apply with a sprayer or use ready-to-spray formulations. The latter option is simpler to use but will be more expensive.
- Check the label for plants with known intolerance for oil sprays.

## Active ingredients

### Listed as one of the following

- mineral oil (or paraffinic oil; commonly with a footnote of “contains petroleum distillates”)
- plant-derived oil (soybean, cottonseed, rosemary, neem, etc.); most neem-based horticultural oils will be listed as “clarified hydrophobic extract of neem oil” and will lack azadirachtin
- fish-derived oil (often combined with a plant-based oil and may be included only as part of the inert ingredients)

## Pests managed:

Generally, labeled for pest mites, thrips, whiteflies, **scale** (soft and armored), plant bugs, lace bugs, caterpillars (webworms, codling moth, armyworm, hornworm, leafrollers, etc.), and other soft-bodied insects (**aphids**, adelgids, psyllids, sawfly larvae, leaf beetle larvae, and leafminers). Also, sometimes for the suppression of some **fungi** (powdery mildew, rust, sooty mold).

## Pesticide type

- synthetic or organic, depending on formulation
- contact
- broad-spectrum

## Mode of action: multiple impacts, including

- **suffocates** – blocks breathing pores
- disrupts cell membrane function
- repels – feeding and egg-laying deterrent, altering leaf surface characteristics and leaf “taste”

## Advantages

- short residual - reduced impacts on beneficials and non-target organisms
- **very low toxicity to humans and other animals**
- can be applied up to the day of harvest when used on edibles
- can sometimes be mixed with other insecticides (at reduced strength) for a broader range of effectiveness

## Disadvantages

Potential for plant damage, either serious or cosmetic:

- numerous oil-sensitive plant species or cultivars (see product label)
- avoid use on plants experiencing drought or transplant stress
- may permanently change the color of treated foliage, particularly on evergreens (see sensitivity precaution below)

## Application guidelines

- **Coverage must be thorough.** When used as an insecticide, coat all bark or leaf surfaces (upper and lower). When spraying bark, contacting the leaves is unavoidable, so heed temperature and other precautions below. For use as a fungicide, coat all upper leaf surfaces.
- **Temperature restrictions.** While plant-safe under the right conditions, horticultural oil can cause phytotoxicity (plant tissue damage, especially on foliage) if applied during high heat or when evaporation is reduced due to cloudy, rainy, or very humid weather.
  - **Do not apply during days when the temperature is predicted to be above 85° F** because the phytotoxicity risk is high. If sprays are needed during summer, applications can be made in the cooler morning or evening hours.
  - **In cool weather, make sure the average high temperatures during the day of application are predicted to be between 50-60° F and are also predicted to be in that range or slightly above for several consecutive days (with nightly lows above freezing)** to avoid phytotoxicity and so the oil maintains the proper viscosity. This also ensures insects are using enough oxygen to be impacted by oil’s suffocating effects.
- Do not treat drought-stressed plants - irrigate their root zones and give them several hours or days to rehydrate first.
- **Do not spray open blossoms** to protect pollinators.
- Do not combine with other pesticide applications unless the product label specifically permits it. For example, horticultural oil is not compatible with sulfur or some formulations of copper, components of some fungicides.
- **Test for plant sensitivity.** On plants for which you are uncertain of oil tolerance, test a

small area first and watch for signs of [phytotoxicity](#) over the following one or two days. **Avoid use on blue- or gray-colored foliage** as the oil will remove the leaf wax that creates these colors. (*Examples include varieties of hosta, juniper, spruce, Arizona cypress, fothergilla, and eucalyptus.*)

- Keep the container well-agitated as you spray. Pausing for a period of time can let the oil separate and will result in ineffective application rates (too watery) or plant damage (too oily).
- **Repeat applications will likely be needed** to catch missed individual pests or successive generations of pests or mildew. Follow product label instructions regarding how long to wait between sprays.

## Dilution rates

- A **1%** concentration is the commonly-used rate for in-season use, when plants are growing and when deciduous plants have leaves. This is called a “**summer rate**” because it is less likely to damage foliage than higher concentrations.
- A **2-3%** concentration is referred to as a “**dormant oil**” rate. For deciduous plants, prevent leaf damage by using only after leaf-drop in late fall or before bud-swell in early spring. For evergreens, use only in the winter months before spring growth begins.

**Always** refer to the product label for specific instructions regarding the pests controlled, application details, allowances for pesticide combinations, and storage. Read and follow the label directions.

**FOR EXAMPLE:** This is the label for [Bonide All Seasons Horticultural and Dormant Spray Oil](#):

[https://files.plytix.com/api/v1.1/file/public\\_files/pim/private/assets/43/37/8d/5e/5e8d3743202d9eba64d3af60/texts/81/94/42/60/60429481d92bc09f9b6cf742/1210.pdf](https://files.plytix.com/api/v1.1/file/public_files/pim/private/assets/43/37/8d/5e/5e8d3743202d9eba64d3af60/texts/81/94/42/60/60429481d92bc09f9b6cf742/1210.pdf)

This product is available at most hardware stores (Including Home Depot and Lowes) and on Amazon.

If you have any questions feel free to contact me:

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