Winter is good for hort oil

(Smite mites before they strike)

Dormant-season applications of horticultural oil only work for certain mites and scale species

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Applications of 2% horticultural oil (two gallons of oil in 98 gallons of water) are used from late fall through early spring to control certain pests. This is an "offensive strike" opportunity on overwintering stages of pests that takes them out before they become active next spring and damage plants during the growing season.

Oil applications work by suffocating, rather than poisoning, the pest. The oil plugs up the breathing pores and soft tissues of targeted mites and scale insects.

What you hit is what you get!

It is important to remember that horticultural oils are a contact treatment. But, while thorough coverage is important, soaking or saturating plant tissue can cause phytotoxicity. These applications may not be as effective on certain pest species as you may think and **should not** be used as a general dormant "cover spray."

Know your mites

If you believe you can control *two-spotted spider mites* with winter oil applications, guess again. The two-spotted spider mite overwinters as a female in litter, mulch or other protected areas and is not normally found on the plant. Therefore, this pest is not controlled with the dormant oil strategy. However, the *spruce spider mite* overwinters on its evergreen hosts (arborvitae, juniper, hemlock, pines, etc.) in the egg stage, which makes it quite vulnerable to oil sprays. Be aware, and notify clients, that the oil will temporarily turn those prized Colorado blue and specimen blue Moerheim spruces green, but that new growth will not be affected.

The *honeylocust spider mite* overwinters on its host as a mature female in bark and bud crevices. Again, it is another prime target for dormant applications.

PLANT SPECIES PRONE TO DAMAGE BY FALL AND WINTER OIL APPLICATIONS

Species	*Type of Injury*
Deciduous	
Beech*	Branch dieback (dead cambium)
Butternut*	Branch dieback (dead cambium)
Citrus	Occasional leaf and flower drop and "water spot" of rind
Hickories*	Branch dieback (dead cambium)
Maples*, sugar and silver	Stunted and reddened leaves to branch dieback (dead cambium)
Oaks, red and black	Occasional branch dieback (dead cambium)
Redbud	Late leaf emergence and branch dieback (dead cambium)
Walnut*	Branch dieback (dead cambium)
Coniferous	
Arborvitae	Needle browning, defoliation and branch dieback
Chamaecyparis	Needle browning and defoliation
Cryptomeria	Needle browning, defoliation and branch dieback
Hemlock	Needle browning and defoliation
Junipers	Turns blue cultivars to green (alters wax layers that create the blue color); occasional needle drop and branch dieback
Spruces (blue, white, 'Dwarf Alberta')	Alters wax layers that create the blue color; needles turn purple brown then brown, defoliation and branch dieback
Taxus	Occasional marginal browning of leaves

***High risk plants are noted. Fall-winter oil applications are NOT recommended for these species.**

NOTE: Injury is not always going to happen. Occurrence of injury tends to vary depending on plant dormancy stage, degree of plant stress (vigor), moisture stress, sudden temperature drops and high humidity following application. But most often it is due to an application procedural-related error or an overdose mistake.

Other species that are vulnerable to dormant season sprays are the *southern red mite* and the *boxwood mite*. Both species overwinter on their respective hosts in the egg stage. The southern red mite can be targeted on its broadleaf evergreen hosts, Japanese holly, azalea, *Pieris*, certain *Viburnum* spp., etc., on the underside of leaves.

Soft and armored scales

Oil is an excellent product to reduce overwintering stages of scales; primarily, the first and second instar nymphs of *soft scale* species (magnolia, lecanium and cottony maple scales, etc.). A follow-up spray of 2% oil in late August or September is needed to reduce surviving populations.

Overwintering *armored scales* can be more difficult to control, especially those species that overwinter in the egg stage beneath the scale covering. This group includes oystershell, elm scurfy, elongate hemlock and pine needle scale. Achieving acceptable control of these species is difficult because the eggs are often stacked on top of one another and the oil may only contact the bottom layer of eggs. Target these species during the growing season to get acceptable results.

Pine need scale overwinters as eggs pile under the "shell" of the female. Oils are not effective for this scale during the late fall to winter.

Other armored scale species overwinter as 2nd instar or mature females and are more readily controlled with November through March applications of oil. These scale species include euonymus, juniper, white peach and obscure scale.

Beware of phytotoxicity

Remember, winter identification of plants is critical because phytotoxicity can occur when oil is applied to a sensitive species. Species that should be avoided include arborvitae, beech, *Cryptomeria*, hickory, maple (especially sugar), spruce and taxus. For maple and spruce, sensitivity varies with location; more problems seem to occur in the Midwest than further north. Branch dieback or death of these species has been reported.

Usually phytotoxicity occurs with higher rates of oil (three gallons of oil per 97 gallons) and early fall (before dormancy) or late spring (at budbreak) applications. There are fewer problems when

applications are made in late October through February, when the plants are "completely" dormant. A good guideline is to wait until 24 to 48 hours of below-freezing temperatures have passed during October before spraying, and start the applications, usually in mid- to late-November.

Use agitation and a clean tank

Avoid phytotoxic effects with agitation. Recirculate the oil solution in the hose before spraying each property. These oils are quick-breaking emulsions, which means the oil separates, or "floats" to the surface in three to four minutes. Otherwise, you might spray concentrated blobs of oil solutions, which could injure the plants.

This overwintering Euonymous scale has been flipped out of her teste or "shell." This stage is vulnerable to winter oil applications.

Tests have shown that fertilizer residue in the tank, when combined with the oil solution, can cause a synergism that increases the chances for plant injury. Make sure that the fertilizer residue is completely rinsed out of the tank before adding the oil solution.

When applied properly and for the appropriate pests, horticultural oil offers an opportunity to use a "soft" pesticide when we have time to make applications, as well as increase revenues during a slower time of the year.

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