

Controlling Powdery Mildew with Horticultural Mineral Oil

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In tests conducted by Dr. Grove, spray oils (Stylet and Omni oils) were found to effectively and safely control powdery mildew when used prior to pit hardening. Stylet oil provided control equal to or better than most DMI type fungicides such as Rally and Rubigan (fig. 1). Besides effective control, oils have at least two other advantages. 1) Oils act as both an eradicant and a protectant, providing the destruction of lightly established infections while protecting the leaves from the establishment of new mildew colonies. 2) They provide an alternative mode of action, thereby reducing the likelihood of resistance to current fungicides.

In Groves early work, phytotoxicity became an issue when Stylet oil was applied on a season-long basis. Current recommendations, however, call for only two oil applications. Both must be applied prior to pit-hardening (damage can occur with later applications). The first application should be made at shuck fall. A 1% solution will protect leaves for 10 - 12 days, while a 2% solution is effective for 14 - 18 days. It should be kept in mind that leaves emerging after the application, are susceptible to infection. Strobulatorin (Abound) or DMI type fungicides should be used after pit-hardening to obtain season long control. The goal is to be mildew free before going into a DMI program. This basic program has proven safe and effective.

Some things to keep in mind when using spray oils:

- Apply prior to pit-hardening.
- Don't apply within 10 days of a micronized sulfur application.
- Don't apply azinphos-methyl before, during or after an oil application.
- Don't apply oils with spreader stickers, Nu-Film-P or Nu-Film-17 (pinolene based products).
- Don't apply when temperatures are in excess of 90°F. There have been no reports of damage when applications were made when temperatures were below 90°F but climbed above 90°F later in the day.
- Don't apply 24 hours before or after a frost.
- Don't spray oil on heat or water stressed plants.
- Don't spray oil on wet foliage as oil will simply run off.

Stylet oil does seem to be compatible with dimethoate and, in studies conducted in The Dalles, with NutraPhos ZnK, Metalosate Zinc, and a combination of Metalosate Zinc and 20-20-20 foliar fertilizer.

Besides early season applications, it appears that there may be benefits to applying a spray oil **immediately** after harvest. When an application was made a few days after harvest, cleistothecia numbers (the overwintering stage of the fungus) were greatly reduced. In addition, late season applications effectively reduced mite populations.