

Using Spray Oils For Insect Control

Jim Johnson, Emeritus Professor, Entomology, MSU
Edited and Revised by Gary E. Thornton
District Fruit IPM Educator
Michigan State University

It is that time of year again to consider applying spray oils to fruit trees. For pests that overwinter as eggs, it is one of the most important sprays that you can apply. Even though the information in this article is similar to past years, it is still current and appropriate for your reference.

Why use oils?

Horticultural spray oils, commonly referred to as "dormant oils", superior oils, or 70-second oils, can be effective control materials for insects that occur early in the season. Insects such as rosy apple aphid and European red mites overwinter in the egg stage, and along with San Jose scale, will be suffocated and killed when oils are applied.

Oils fit well into an IPM (integrated pest management) program. Since they are applied when little else is active, they will have minimal effect on mite predators or other beneficials and are a good resistance management strategy. An application of oil at the right time will often lead to fewer applications of other insecticides or miticides later in the season.

With the introduction of Apollo and Savey miticides, the use of oil to control mites in the egg stage is extremely important in resistance management. "Apollo" and "Savey" have similar modes of action against mites, and resistance in the mite population to "Savey" will result in resistance to "Apollo" as well. If these products are used as a grower's sole defense against mites, resistance could occur within 5-8 years! Oil should remain as an important tool in controlling mites, and if it does, these products will be effective for many more years.

What to use?

We have several highly-refined spray oils for use in tree fruit which can be used without fear of phytotoxicity. Any oil named as a "superior", supreme, "70-second", or similar names are paraffinic spray oils and are appropriate for insect control. These oils have a high percentage of unsulfonated residues which make them safe for tender leaves. Vegetable oils and mineral oils have not shown themselves to be effective pest control agents and should be avoided. Be sure to use "heavy" oils such as Sun Ultrafine oil, which are safe for summer foliage and developing fruit and are most appropriately used post-bloom.

When to use oils?

For European Red Mite control, oils are best applied at the tight cluster to early pink stage. Blossom damage can occur when oils are applied at full pink in warm weather. Oil suffocates the eggs when the eggs are most active just prior to hatching, so the closer your oil application is to egg hatch the better. Keep in mind that the weather is not always ideal at this time of the year, so some growers start applying oil with the first acceptable weather after ½" green. At ½" green, the addition of Lorsban 4E will provide additional control of rosy apple aphids and San Jose Scale.

How to use oils

Oils work by suffocation and work because they can get into cracks and crevices where insect eggs are laid. To get the best effect from oil you must have lots of water on the tree in order to get optimal coverage. No one likes to spray dilute sprays, but for oil treatments, dilute applications will provide the best control.

Keep in mind that at tight cluster time a dilute application takes roughly 60% of the full dilute rate of water. For example, a 400 gallon equivalent tree will be sprayed dilute with roughly 240 gallons of water at tight cluster. If you must spray with a concentrate sprayer, concentrate no more than 2X. Remember, the more water, the better efficacy you will have.

Precautions on using oils!

Oils are highly refined petroleum products and, as such, will have some compatibility problems. Generally speaking, oils should not be used within 14 days of a pesticide containing sulfur (such as Captan, Sulfur, or Morestan). If applied closer than 14 days, phytotoxicity can occur, with symptoms such as leaf tip burn showing up on trees.

Many fungicides are compatible with oil, such as Nova, Rubigan, EBDCs, and others. Be sure to check the compatibility chart in the 1998 Fruit Spraying Calendar (MSU Extension Bulletin E-154) or the pesticide label, if you are unsure of the compatibility with oil.

Temperature also plays a role in the safety of oil sprays to the tree. Generally speaking, oil sprays will make plant tissue more susceptible to cold injury and should be applied when temperatures are going to be above 40° F. This makes it difficult to apply oils under typical Michigan conditions. Leaf tip burn and blossom damage can occur when there are sub-freezing temperatures after oils sprayed at ½" or later.

Overall, an oil spray that is properly timed is one of the most important insecticide applications you will make all year. Often, insect and mite populations are controlled well enough with this spray that later aphid, scale, and mite control can be reduced or eliminated.

4/7/98

Please send any comments or suggestions regarding this site to:

Bill Klein, kleinw@msu.edu

Last Revised: 3-5-99