

# TSU NURSERY NEWS TO USE

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**IT'S TIME TO BE THINKING ABOUT OILS!** Horticultural oils are pesticides that control insects, mites and some plant diseases, however, they are often overlooked as a component of Integrated Pest Management (IPM) in the nursery.

Commercial horticultural oils are composed of a highly refined petroleum product that is filtered and distilled to remove plant toxins, resulting in a low UR, or unsulfonated residue. They are formulated with a mixing agent for ease of application. A high UR (greater than 92%) indicates a highly refined product with less probability of phytotoxicity.

Horticultural oils have a UR value below 92%. Phytotoxicity can occur when rates over 4% are used and applications are made at the wrong time; ex. early fall, before dormancy or in late spring, at bud-break. Fewer problems occur when applications are made in December through February, when plants are completely dormant. To minimize the potential for phytotoxicity, make sure the spray solution is continually agitated. **FOLLOW LABEL RECOMMENDATIONS AND RATE!**

| SEASON / TYPE                 | TIMING DESCRIPTION  | ~ RATE                                  | RESTRICTIONS   |
|-------------------------------|---|---|--|
| DORMANT                       | WHEN LEAVES OF BLOSSOM BUDS ARE BURSTING AND SHOW 1/8 – 1/4 " GREEN | 2 to 3 GAL / 100 GALLONS WATER (2 - 3%) | ABOVE 40° WITH NO FREEZE 48 HRS AFTER                    |
| DELAYED DORMANT               | WHEN LEAVES OF THE BLOSSOM BUDS ARE OUT TO A 1/2"                   | 2 GAL / 100 GALLONS WATER (2%)          | ABOVE 40° WITH NO FREEZE 48 HRS AFTER                    |
| SUPERIOR / SUPREME aka SUMMER | TREES AND SHRUBS ARE FULLY LEAFED OUT                               | 1 to 2 GAL / 100 GALLONS WATER (1 - 2%) | BEST BETWEEN 50 - 70s° WITH LOW HUMIDITY, UP TO LOW 80s° |

\* CHECK LABEL FOR RESTRICTED PLANTS (PHYTOXICITY);

\*\* FRUIT TREE RECOMMENDATIONS WILL VARY, PER SPECIES: (A) APPLE at green tip, (b) PEAR at cluster bud, (C) CHERRY at white bud, (d) PEACH at pre-bloom (when pink shows through bud)

Historically, horticultural oils were called “dormant” oils because they were only used in the dormant season, however, over time, “superior or supreme” oils were developed that are lighter and contain no sulfur, making them less likely to burn plants over the traditional dormant oils. Superior or supreme oils are also called “summer” oils because they can be used over the growing season when, mixed in proper concentrations. The term “dormant” now refers to the seasonal timing of the application.

If used correctly, horticultural oils can decrease both insect populations and pathogen activity. Oils control insects by direct contact so the insect (or part, ex. egg) must be present for the oil to work. Complete coverage is required for the treatment to be effective. When horticultural oils are sprayed onto the plant, they not only desiccate the insect, egg or overwintering insect, they also work through suffocation. Direct contact results in clogged breathing tubes (spiracles or “lungs”) and disruption of egg development. Japanese maple scale and spruce spider mite are excellent examples of insect pests that are readily controlled by horticultural oil applications.

Horticultural oils can also act as a fungicide, reducing the ability of some pathogens to spread by trapping spores, slowing the spread of the disease. Powdery and downy mildew, rusts and many leaf spot diseases can be controlled to some degree with oil sprays. Should the pathogen be vectored by an insect, killing the insect will reduce the spread and therefore, the virulence of said pathogen.

HORTICULTURAL OILS are relatively safe for humans and wildlife; it evaporates quickly, degrades rapidly and leaves no toxic residue. The mode of action is mechanical (smothering) rather than chemical, so no resistance potential; and, no special equipment is needed to apply. There are however, a few disadvantages to include: application timing is critical; it can cause skin or eye irritation; it can be toxic to fish if applied near water and bees, if applied while bees are foraging; there is little residual effect so new infestations are not controlled by a previous application; it can be phototoxic to some plants: blue-colored evergreens can lose color; a few sensitive plants include junipers, cedars, Japanese and red maples, redbud, smoke tree and spruce); CHECK LABEL and if concerned, test a small section plant prior to treatment to determine plant tolerance; it can't be used in the heat (temps in the 90s), on drought-stressed plants or new transplants.

It's important to pay attention to temperature and humidity when applying horticultural oils at any time of year. They are most effective when temperatures stay above 40 and below 85° F, with low relative humidity. These conditions allows the oil to evaporate quickly. Irrigation prior to applications will reduce water stress after treatment. It is not recommended to utilize horticultural oils when temperatures are above 90° or plants are drought stressed.

To determine when to use oils in your nursery system, look to the weather. Choose a time when forecasted temperatures are sufficient (will be based on time of treatment) and will stay that way for at least 24 hours, with no rain or high winds predicted.

Horticultural oils work well to control pests and can be a less toxic approach than chemically based insecticides. Treating in the winter or early spring can save time and help you avoid later problems. For more information, please contact Amy Dismukes at [adismuk1@tnstate.edu](mailto:adismuk1@tnstate.edu). REFERENCE AVAILABLE AT [https://extension.tennessee.edu/mtnpi/Documents/handouts/Insect%20and%20Disease%20Control/Horticultural\\_Oil\\_Handout.pdf](https://extension.tennessee.edu/mtnpi/Documents/handouts/Insect%20and%20Disease%20Control/Horticultural_Oil_Handout.pdf)

**USING THE TENNESSEE ONLINE PESTICIDE SYSTEM!** The TSU Nursery Research Center wants to make sure you have the most up-to-date information regarding your licensing and certification. To check or confirm your points, go to the TDA site at <https://www.tn.gov/agriculture/>

- select **BUSINESSES** (1<sup>st</sup> dropdown selection across site banner)
- select **PESTICIDE**
- select **ONLINE PESTICIDE SYSTEM** (3<sup>rd</sup> option down, in left-hand side column)
- select **COMMERCIAL APPLICATOR POINTS** (2<sup>nd</sup> option in blue column on right side), which will take you to <https://healthspace.com/clients/tda/state/weblive.nsf/pesticides.xsp>
  - select **COMMERCIAL / PRIVATE APPLICATORS** again, the 1<sup>st</sup> option in the blue box on the right side
  - enter **PIN # OR LAST NAME** to search for your points

**FOR FURTHER ASSISTANCE, CONTACT TDA at 615-837-5148.**



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