April 22, 2010

A LITTLE BIT COUNTRY
WARREN FROELICH
NDSU EXTENSION SERVICE
WILLIAMS COUNTY

Horticultural Oils Offer Some Insect Relief

For many years oil based pesticides have been used to control many garden and fruit tree insects. These products first became popular as a way to control pest problems on fruit trees. Fruit trees posed a unique problem because they were susceptible to insects, but many of the effective insecticides could not be used because of the fruit's use in human diets. Then there was the potential of killing beneficial insects necessary for pollination.

The early heavier oils also presented a risk to foliage of plants. They would burn the leaves. So, their applications were limited to the dormant season prior to opening of flower buds. Since those early days, the oils have been refined and are more user-friendly. For many of the products on the market, applications can be made without harm to many plants. These summer or all-season oils are a lighter version and are generally labeled as general purpose horticultural oil. "Horticultural oil" has become the common usage term. If the term "dormant oil" is used in today's market, it likely refers to application timing. The terms "summer oils" and "horticultural oils" are synonymous.

There seems to be some dispute on the mode of actions of the insecticidal oils. Some literature cites the oil as blocking the spiracles through which insects breathe, thus causing suffocation. Others say the oil causes membrane disruption.

Labels state the oils are effective on a variety of soft-bodied insects such as aphids, scale and whiteflies; however, they are less toxic to insects than many synthetic pesticides and consequently are used at higher rates. Horticultural oils need to be sprayed directly on the pests to be effective.

These horticultural oils are usually combined with some type of emulsifying agent so that they can be mixed with water and used as a spray. They are generally mixed at a rate of 1-4 parts of oil to 96-99 parts of water. The manufacturer's label will give instruction for mixing, application, and a list of target insects.

Although the oils are ecologically friendly there are some words of caution. Most importantly, do not apply horticultural oil when temperatures are hot—around 100 degrees F. Even though plants are receiving ample water at these temperatures, most cannot consume enough to make up for the water lost through transpiration. Thus, the plants will be stressed and susceptible to damage by the oil. On the flip side of the thermometer, do not apply the oil in freezing temperatures because the emulsion will not hold together well enough to provide uniform coverage. Applications during damp conditions decrease the rate of evaporation and put the foliage at risk of burning. It is important to check the label for a list of plants prone to have sensitivity to oils. Not all plants react the same.

Horticulture oils have good spreading properties and sometimes are used at lower rates to enhance the efficacy of other synthetic insecticides. For those with an observant eye, the oils also add a sheet to treated foliage. This may not be an advantage when used in open spaces when the wind is moving dust particles.

Although the use of synthetic insecticide is most common, the horticulture oils do offer insecticidal activity, especially on soft and slow moving insects. The nymph of pine needle scale is a good example.