

Neem Oil in Horticulture

Neem Oil is a vegetable oil pressed from the fruits and seeds of the Neem tree, *Azadirachta Indica*, which is an evergreen tree also known as Indian Lilac, endemic to the Indian subcontinent it has also been introduced to many other areas in the tropics. It is a very important, commercially available product of Neem that is widely used for organic farming and medicines.

The colour of Neem Oil is generally blood red to dark brown with rather a strong odour, similar to the combined smell of peanut and garlic with the best production results obtained through cold pressing.

Neem Oil is not used for culinary purposes. In India, it is used for preparing cosmetics (soap, shampoo, skin creams, hair products, body hygiene creams and hand creams) and is also used in Homeopathic Medicines.

Used in Horticulture in North America it is claimed to repel a wide variety of pests including the mealy bug, aphids, thrips, whiteflies, mites, fungus gnats, beetles, moth larvae, mushroom flies, leaf miners, caterpillars, nematodes and the Japanese beetle.

A fact sheet on 'Insect Control: Horticultural Oils' issued by the Colorado State University states "certain oils, diluted with water and applied as sprays, can be effective controls of many plant pests, horticultural oils are usually highly refined petroleum oils combined with an emulsifying agent. Some plant-derived oils also are used. The advantages of oils include safety, effectiveness and limited effects on beneficial insects and various oils have been used for centuries to control insect and mite pests. Oils remain an important tool to manage certain pest problems (e.g., scales, aphids, mites) on fruit trees, shade trees and woody ornamental plants. Several recently developed oils extend this usefulness to flowers, vegetables and other herbaceous plants. Oils also can control some plant diseases, such as powdery mildew. Oils used to protect plants have been called by many names, but perhaps horticultural oils best describes them. Oils have different effects on pest insects. The most important is that they block the air holes (spiracles) through which insects breathe, causing them to die from asphyxiation. In some cases, oils also may act as poisons, interacting with the fatty acids of the insect and interfering with normal metabolism. Oils also may disrupt how an insect feeds, a feature that is particularly important in the transmission of some plant viruses by aphids."

Neem Oil is not known to be harmful to mammals, birds, earthworms or some beneficial insects such as butterflies, honeybees and ladybirds if it is not concentrated directly into



their area of habitat or on their food source. As it is also claimed to have fungicidal properties it could also be used as a fungicidal and disease control on roses and other plants against black spot, powdery mildew, anthracnose and rust (fungus).

Neem Oil has many active ingredients which are similar to the hormones that insects produce and when digested through eating on a plants leaf the insects take up the neem oil ingredients just like natural hormones, it then enters their system and blocks the real hormones from working properly. Neem Oil does not allow a larva to shed its skin as it eats and grows and accordingly then loses the ability to grow, ultimately leading to its death. It also prevents the females from laying eggs and so by inhibiting the insect's ability to eat, grow, mate and lay eggs it thus breaks down the pest's cycle of life. Where it differs from most conventional pesticides is that by acting on an insect's hormonal system as opposed to its nervous or digestive system it does not lead to the development of resistance in the future. **It is claimed that most insects die shortly after spraying and then even the slightest hint of the presence of Neem Oil on a plant is sufficient to deter the leaf eating insects.**

Neem Oil works from inside the plant as it is a systemic insecticide, which means that in addition to foliar spraying a solution can be poured onto the soil, or container compost and the plants will absorb it, they take it up into their tissue, and it works from the inside.

Having over the years found Red Spider Mite a very troublesome and persistent pest on my roses, especially the miniatures which I grow in large containers, I am hoping that using Neem Oil could well be a better control of the pest than the usual expensive miticides and insecticides. I have found it very difficult to completely eradicate this particular pest as it always seems to overwinter very successfully somewhere, before coming back to attack the roses the following year.

A regular spray routine on a weekly basis is the best course of action, only 5ml of Neem Oil is required per litre of water and an emulsifier, such as Horticultural soap must be used to help the Neem Oil disperse in the water. This preventative measure would prove invaluable for our roses especially to those exhibitors growing them in the greenhouse for the RNRS Spring Show.

For maximum effectiveness, only the amount required per application should be made up as the mixture cannot be stored, the neem oil spray has to be used freshly made.

Both Neem Oil and Horticultural Soap can be obtained in the UK through Pink Sun Ltd their website is: www.pinksun.co.uk

Or contacted by email: sales@pinksun.co.uk

Brian Schofield.

NB: Under EEC regulations pure Neem Oil cannot be marketed in this country as a pesticide, therefore ready made formulas containing Neem Oil cannot be sold as such, but pure Neem Oil that needs to be mixed with water and soap is outside of the definition of a Biocidal product.