

How Precision Spray Oils™ work to control pests

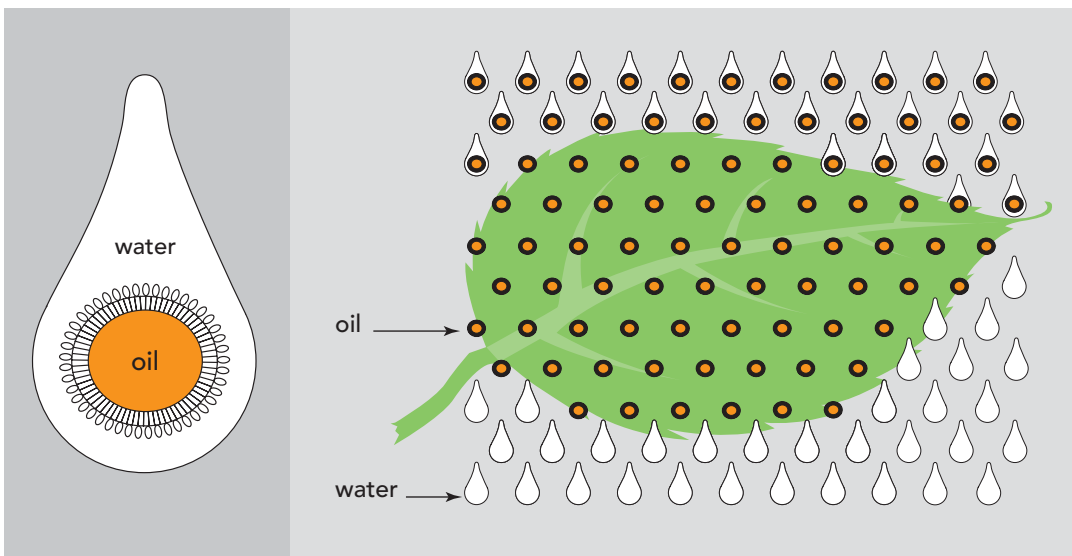
'When we kill off the natural enemies of a pest, we inherit their work'

Carl Huffaker, biocontrol pioneer

Crops are mini ecosystems where the ability to maintain a favourable balance between beneficial insects and pests is critical to producing quality, profitable yields. Disturb this balance with indiscriminate chemical spraying and you risk increasing a crop's vulnerability to infestations and secondary pest outbreaks.

1 Uniform coverage smothers pests without burn or stress to plants

Spray oils need to be applied at optimum volumes to achieve a thin even coating of oil over the plant or fruit surface. Precision Spray Oils™ contain 'quick-break' surfactants that are ideal at producing an oil film that lets the bulk of the water run off the foliage quickly, leaving the oil to spread laterally and uniformly to cover the leaf cuticle and smother *in-situ* pests.



Oil stays on the leaf surface while mostly water runs off.

Ensure that all plant surfaces are evenly coated with oil, including upper and lower leaf surfaces, fruit, branches and tree trunks.

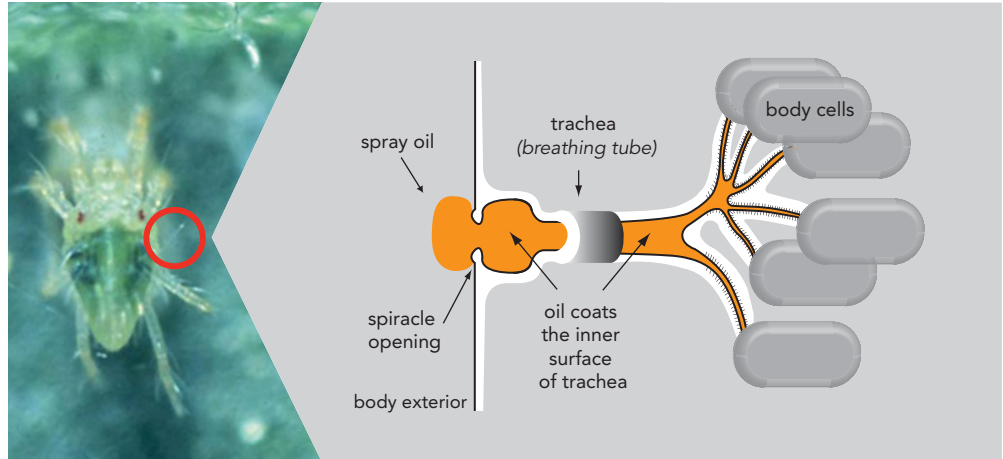
It is better to apply multiple sprays of lower concentrations of oil in the tank mix than to use single sprays of higher oil concentrations.

2 Soft bodied pests are suffocated

Precision Spray Oils™ control sucking pests without posing a threat to the environment. They block the respiratory system causing suffocation. Secondary toxic effects may include penetrating external tissues and degrading them.

Anoxia (suffocation) occurs as oil moves into the pest's tracheae (breathing tubes) and clogs its respiratory system, interfering with the normal exchange of oxygen.

The timing of spray oil application can be critical, with the most effective control gained when pests are young and recently hatched.



Horticultural spray oils are effective in controlling aphids, spider mites, mealybugs, whiteflies, plant bugs, caterpillars, scale, and some plant diseases like rusts and mildews (Olkowski 1991).

3 Feeding patterns and egg laying behaviour are disrupted

Research has shown that after applying Precision Spray Oils™, less airborne volatiles are released from plants, interfering in a pest's ability to choose a suitable feeding and egg-laying surface. Regular 4-5 day applications are required to maintain potential egg-laying deterrence.



Precision Spray Oils™ can also interfere with the development and hatching of existing eggs on the leaf surface; in the first instance, by preventing normal oxygen exchange via the egg surface. This hardens the outer membrane, preventing hatching. And secondly, by penetrating into the egg itself to cause protoplasm coagulation.

4 No pest resistance or stimulation of secondary pest outbreaks

Precision Spray Oils™ work by physically interrupting the process of pest respiration, not by metabolic disruption, so resistance development is very unlikely.

Pest resistance and secondary pest outbreaks

The cost to develop new pesticide chemicals is aggravated by the rate of pest-resistance development to chemicals. These ever-increasing costs are always passed onto the grower. Using a pesticide rotation program that includes Precision Spray Oils™ helps preserve the efficacy of chemicals for seasons to come.

Repeated chemical applications can clean out beneficial insects from a crop, leaving it without natural protection and open to infestations by secondary pests. Precision Spray Oils™ cause minimal disruption to beneficials, allowing them to continue protecting your crop at no extra cost.

The sustainable alternative

Precision Spray Oils™ offer the sustainable alternative in the fight against the ongoing emergence of pest resistance to broad spectrum chemicals. They help to restore the natural balance of the crop ecosystem by minimising harm to beneficials while controlling pests. They offer low toxicity to humans, animals and plants; they do not stimulate pest outbreaks, do not induce pest resistance, are safe to handle and do not persist in the environment, being broken down within weeks by microbes and oxidation.