

# Isomate<sup>®</sup> 4play

## MATING DISRUPTION

Codling Moth



3 NZ Leafroller

**4play™ combines  
TWO previous  
products into  
one efficient,  
cost effective,  
multi-pest  
solution.**

ISOMATE<sup>®</sup> - THE WORLD LEADER IN MATING DISRUPTION



**Isomate mating disruption dispensers are an environmentally friendly method of insect pest management for use in conventional, IFP, Apple Futures and organic orchards.**

### 4Play™

Is chemically identical to the natural pheromone of the insect pests. The release pattern of the pheromone from the dispensers is critical to ensure the correct dose is released throughout the season

Male and female moths find each other through a chemical "perfume", or sex pheromone released by the female. The pheromone for each moth species is a distinct blend of chemicals. Each Isomate dispenser releases pheromone at a rate 10,000 times higher than that of the female moth.

Dispensers work in two ways, firstly, by overloading the male's antennal receptors so its "brain" no longer responds to signals. Secondly, by having many dispensers in the orchard a

"pheromone fog" is produced and males have no concentration trails to follow to find females.

Isomate dispensers are supplied in vacuum sealed foil envelopes (400 per packet). Pheromone release begins when the envelope is opened. Dispensers should be stored unopened at 4°C or below.

### Placement of dispensers

Dispensers should be put out just before the first codling moths emerge. In Hawke's Bay, this occurs in early October for codling moth. The correct placement of dispensers is crucial to the success of mating disruption.

### How to use Isomates

- They need to be attached to the top 10% of the tree.
- Dispensers must be placed individually in each tree. If trees require two dispensers, place on opposite sides of the tree. It is essential to have an even spread of pheromone dispensers throughout the whole block.
- Simply slip the twin tube dispenser over a spur or branchlet.
- Dispensers should be placed in a shady position (i.e. on the southern side of the tree). This will help to prevent the pheromone evaporating too quickly and will extend dispenser life.
- If moths are likely to be immigrating from a neighbouring block, put extra dispensers in the boundary trees, shelter or fence line.
- If treated blocks are subjected to strong winds, place more dispensers on the windy side.
- Follow export fruit protocols.

### Monitoring the effectiveness of dispensers

Insects in disrupted orchards can be monitored by:

- Using traps baited with 10x concentrate Desire pheromone lures
- Place traps in the block following IFP guidelines (one trap per 1-2 ha, biased towards areas with immigration pressure)
- Placing traps at the top 10% of tree for Codling moth (this is where disruption is most likely to be less effective), using a rope-pulley system or poles. Place Leafroller traps low down at a height of 1 - 1.5 m
- Checking and clearing traps weekly and keeping them well maintained (change bases 3 weekly and lures 6 weekly)
- Using the IFP pest thresholds to determine when to apply other treatments.



Monitoring with DESIRE Traps and Lures



*Mating disruption of individual blocks in high leafroller pressure areas e.g. Nelson may be less effective if pregnant females are entering the mating disruption blocks from surrounding areas as these individuals will still lay eggs and damage will occur. Monitoring and use of insecticides is required in these situations. Neighbouring bush, scrub, crops and unsprayed vineyards can all be sources of high levels of codling moth and leafroller and need to be managed.*

## Getting the best out of Isomate disruption.

**Release Pattern:** Use a dispenser tested and proven under NZ conditions. Dispenser release technology varies by product. Even release throughout the season and particularly late season is critical to protect the crop. Some competing 'Codling Moth' products can release too fast meaning less protection late season.

**Pest population:** Mating disruption is most effective on low to moderate pest populations. Implement mating disruption before the pest becomes a problem, otherwise use mating disruption with insecticides, at least during the the first season. Treat surrounding areas, if required, to reduce pressure.

**Block size and shape:** Pheromone treated areas should be a minimum of 1 ha. Mating disruption does not prevent females mating outside the treated area and then flying in and laying eggs. Therefore, it works best on larger blocks because a bigger area, away from the edges, can be protected.

Square or regular shaped blocks are preferable to long thin or irregular ones: More of the trees are some distance from the boundaries and therefore less vulnerable to immigration of mated females.

Flat blocks are preferable to sloping ones: The pheromone will drain away with air movement down slopes.

**A uniform block is better than one with many small or missing trees:** Leaves not only reduce wind speed, they also act as small pheromone dispensers by absorbing and re-releasing the pheromone. An even canopy has fewer gaps and provides a more uniform pheromone concentration.

**Wind:** High winds dilute the concentration of pheromone in the orchard. Dispensers are placed in the tops of trees as this is where moths often mate and wind downdrafts push the pheromone downwards.

**Blocks should have good shelter:** Wind can reduce pheromone concentrations below effective levels in exposed blocks.

Hill sites also present a problem, as wind speeds are greater over the tops of hills.