



2011 SIR Program – Zone 2 & 3 Understanding Codling Moth Mating Disruption

In 2011, the codling moth area-wide management program is planning to use Isomate CM/LR TT® mating disruption (MD) dispensers in all apple and pear blocks as an area-wide treatment throughout Zones 2 and 3 (Peachland to Salmon Arm) of the current SIR Program area. This MD product will control codling moth (CM) and aid in the control of fruittree, European, obliquebanded and threelined leafrollers (not eyespotted bud moth) by reducing their peak mating and egg laying activity.

Blocks in Zone 1 (Summerland-Osoyoos) will continue to receive once-weekly area-wide releases of sterile moths (SIT). In the Similkameen Valley, blocks not involved in pilot projects will receive the same area-wide treatment of sterile moths.

Neither MD nor SIT will work when wild CM populations are too large. All growers will be expected to apply one or more cover sprays if wild CM populations are too large based on trap catches, damage assessments and/or tree banding by SIR staff.

What is Mating Disruption?

Mating disruption (MD) is a control method that involves the release of synthetic female moth sex pheromone into the orchard air from plastic tube dispensers hung high in fruit trees at a prescribed rate/hectare.

How does Mating Disruption work?

Sex pheromones are a blend of chemicals released by female moths to attract or “call” male moths for the purpose of mating. Under natural conditions, the male moths follow the trail of pheromone by flying upwind to find the calling female. However, when the orchard air is artificially saturated with synthetic sex pheromone released from the dispensers, the male moths cannot easily follow these trails, and are either prevented entirely, or at least delayed in finding any calling female moths.

Although MD does not prevent all moths from mating in treated blocks, especially in blocks with moderate to high populations of CM or leafrollers (LR), it can still delay mating for up to 4-6 days. Research has found that this delay in mating can reduce the number of fertile eggs produced and the number that successfully hatch by 50% or more. When CM populations are very low, as is the case in most apple and pear blocks within the current SIR Program area, then the combination of reduced and delayed mating, can greatly reduce or eliminate fruit damage and the need for cover sprays.

Is Mating Disruption as effective as sterile moths?

Research conducted by scientists at the Agriculture and Agri-Food Pacific Agri-Food Research Centre indicates that MD is as effective at controlling CM as is SIT when either are applied on an area-wide basis, and provided there are no uncontrolled sources of CM nearby. In commercial orchards either tactic

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can prevent low CM populations from reaching action thresholds but both may require supplemental chemical treatments when and where CM population levels exceed acceptable prescribed action thresholds.

What can cause Mating Disruption to fail?

The main causes for failure of MD are excessive pest pressure within a block and/or immigration of mated female leafroller and codling moths from nearby unmanaged sources. Where high pest populations exist within a block, there is a greater chance that male moths will find and mate with female moths within the first 1-3 days of female emergence. This will result in most eggs being laid and hatching, and more fruit damage.

If there are uncontrolled populations adjacent to the block, mated females can fly into MD-treated blocks where they lay viable eggs that result in unexpected fruit damage. MD will not prevent mated female moths from flying into treated blocks. Also, MD will not control CM outside the treated blocks, hence the need for an area-wide application to all neighbouring blocks to be most effective.

CM can also enter blocks as larvae and pupae on infested host materials (wooden ladders, poles, firewood and bins) or on orchard equipment. In the case of LR, newly-hatched larvae can be blown in from nearby unmanaged sources, which, unlike CM, can include many other kinds of fruit trees, berries and ornamental trees and shrubs.

When and who will apply mating disruption dispensers and pheromone traps?

Program staff will apply a single full-rate application of 750 Isomate CM/LR TT dispensers/hectare to all pome fruit blocks in April and early May before emergence of CM adults, beginning in Peachland and Oyama and moving northward. Every treated block will be inspected to ensure the dispensers have been applied at the correct rate and height in the trees. At the same time, SIR staff will hold tail-gate meetings at various locations to answer questions growers may have about MD and codling moth control in general. Watch for announcements of dates, times and locations - check our website www.oksir.org

In some cases, growers may still be pruning trees when dispensers are scheduled for application. Applicators will try to place dispensers on limbs least likely to be removed. Growers are asked to avoid removing limbs with dispensers. If treated limbs must be removed, please place the dispenser on a nearby limb in order to maintain the proper dispenser density and protect the block from any CM.

Pheromone traps will be set out right after application of MD in the same places as 2010 to monitor wild codling moths. The traps will be baited with the Pherocon CM-DA Combo lure (Trécé Inc.) which has proven to be very attractive to both male and female CM under MD.

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How will I know if I have to spray for CM under MD?

All pheromone traps will be checked at least once a week and catches will be recorded on the trap bottoms and posted on the SIR Program web site (www.oksir.org) along with maps showing trap locations and counts. Growers and/or advisors who provide their email address to the Program will receive weekly trap counts for their orchards. The SIR trap monitor will also provide a trap count sheet if requested by a grower.

Members of the Okanagan Tree Fruit Company (OTFC) and independent growers with contracted pest management consultants can seek advice from their respective fieldman or consultants on if and when to apply a cover spray for CM control. Independent growers lacking contracted advisory services can seek similar guidance from SIR staff. Check our website for contact information www.oksir.org

How do I use MD for leafroller control?

Growers will be expected to maintain their current LR control practices which focus on controlling the spring populations. Isomate CM/LR TT® should reduce the numbers of eggs being laid and subsequent numbers of larvae through a combination of reduced mating and delayed mating, especially in orchards with low LR pressure. Unfortunately, growers near urban centres have a greater risk of mated LR females moving from the many uncontrolled sources (ornamental trees and shrubs) which will put pressure on the MD

In order to take advantage of the LR mating disruption part of Isomate CM/LR TT® to control obliquebanded and threelined leafrollers, growers should use pheromone traps to monitor the moths beginning in June. The SIR Program will NOT set out pheromone-baited traps to monitor LR. Growers interested in trapping obliquebanded and threelined leafrollers moths should consult their advisors on obtaining and using traps, and on how to use the trapping information to determine if and when to apply sprays.

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