



2011 SIR Program - Zone 1

In 2011, all apple and pear blocks in Zone 1 (Summerland to Osoyoos) will continue to receive once-weekly area-wide releases of sterile codling moths (SIT). In the Similkameen Valley, sterile moths will be released based on the previous or current presence of CM or its damage (except blocks involved in the pilot projects).

Pome fruit blocks in Zones 2 and 3 will receive Isomate CM/LR TT® mating disruption (MD) dispensers as an area-wide treatment throughout Zones 2 and 3 (Peachland to Salmon Arm) of the current SIR Program area.

Neither SIT or MD 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.

This article was prepared to answer questions growers, especially new growers, may have about the sterile insect technique and its use to control codling moth through the area-wide season-long weekly release of sterile moths.

What is the Sterile Insect Technique?

The sterile insect technique (SIT) involves the release of adult insects sterilized by exposure to ionizing radiation (usually gamma radiation). In the case of the SIR Program, this technique involves the release of sterile male and female codling moths in orchards to mate with wild moths in order to produce only sterile eggs. No larvae are produced that will attack the fruit.

This technique is used in area-wide programs to control pink bollworm and the screw-worm fly in the US, against various tropical fruit flies around the world, and against false codling moth in South Africa.

How does SIT work?

Once released in orchards, sterile female and male moths will seek mates, both sterile and wild fertile moths, with which to mate. SIR Program staff release a large number of sterile moths in each block to increase the likelihood that any wild fertile moths present will mate only with sterile moths and hence produce no healthy eggs. Thus it is very important that wild populations within and around the blocks be low as possible for SIT to keep wild codling moth numbers from increasing to damaging levels.

Is SIT as effective as Mating Disruption?

Research conducted by scientists at the Agriculture and Agri-Food Pacific Agri-Food Research Centre indicates that SIT is as effective at controlling CM as is MD when either are applied on an area-wide basis, and provided there are no uncontrolled sources of CM nearby. In commercial orchards either tactic can prevent low CM populations from reaching action thresholds but both may require supplemental

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chemical treatments when and where CM population levels exceed acceptable prescribed action thresholds.

What can cause Sterile Insect Technique to fail?

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

If there are uncontrolled populations adjacent to the block, mated wild females can fly into SIT-treated blocks where they lay viable eggs that result in unexpected fruit damage. SIT will not prevent mated wild female moths from flying into treated blocks.

CM can also enter blocks as larvae and pupae on infested host materials (wooden ladders, poles, firewood and bins) or on orchard equipment. Therefore growers should avoid introduction of potentially infested materials and equipment, especially from unfamiliar sources.

When and who will release sterile moth and hang pheromone traps?

All pome fruit blocks between Summerland and Osoyoos will receive one petri dish of sterile moths once/week/acre from late April to September 2011. In the Similkameen Valley, orchards in which CM presence were detected in the past 2 years or current season will receive sterile moths (except blocks involved in the pilot projects). Staff has marked the alleys in every block within which the moths are released using ATV's. It is important that these alleys be kept free of debris and mowed to expose irrigation pipe and other equipment.

Pheromone-baited traps will be set out in April in the same places as 2010 to monitor wild codling moths.

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

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 if and when to apply a cover spray for CM control. Independent growers lacking contracted advisory services can seek similar guidance from SIR staff.

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