EFFICACY OF SIRENE-CM AGAINST CODLING MOTH IN UTAH

Michael E. Reding & Diane G. Alston
Utah State University Extension, 5305 Old Main Hill, Logan, Utah 84322-5305
Phone: 435-797-0776, E-mail: miker@ext.usu.edu

The attract & kill technique may be an effective strategy for insect pest management in tree fruits. This technique combines a pheromone and an insecticide in a viscous, tar-like material, that can be applied by hand. The target pest is attracted by the pheromone, comes in contact with the material and receives a lethal dose of insecticide. Because the attract & kill material is applied to branches and not the fruit, insecticide residues on the fruit should be substantially reduced. The Attract and kill product SireneCM was tested against codling moth in northern Utah. Pressure from codling moth is generally high in Utah and apple producers typically apply 4-5 insecticide treatments per season to control it.

The Test Site. The study site was a 1.7 acre (0.69 ha, 390 trees) block of 10-12 foot tall, 9-year-old apple trees at the Kaysville research farm, Kaysville, UT. This block contained eight apple varieties dispersed randomly throughout the block.

Application. The material, SireneCM® is produced by Novartis Agro, Basle, Switzerland, and was provided by IPM Technologies, Portland, OR. The active ingredients were Permethrin (6%) and codling moth pheromone, E8, E10-dodecadien-1-ol (0.16%). Six droplets of Sirene were applied to each tree for a rate of 1400 droplets per acre (2030/ha). Application time required about 2 worker hours per acre. Three treatments of Sirene were applied (29 May, 6 July, and 13 August 1998) at about 5.5 week intervals. Because the first Sirene treatment was applied 4 weeks after biofix, one treatment of guthion was applied (8 June: 290 DD after biofix).

Sampling. Codling moth populations were monitored by 1 trap in the Sirene treated block and 1 trap in a standard (guthion, 4 treatments) treated block at the Kaysville station. These traps were baited with rubber septa loaded with 1X pheromone. Fruit were evaluated for codling moth damage at ca. commercial harvest timing for each cultivar. All fruit on 5 trees of each cultivar were evaluated. In addition, 8 border trees (Jonathan, 2 on each side of the block) were sampled.

RESULTS

Sirene was easy to apply, but application was time consuming (2 worker hrs/acre). Two moths were captured in the Sirene block during the 1st three days following the 29 May application. Only 1 moth was captured thereafter. Codling moth pressure was high at the Kaysville station, with peak captures of >3 moths/day in the Sirene block during May and in the standard block during August. In the Sirene block infested fruit were first detected 7 Aug. Fruit damage at harvest varied among cultivars (0.9-7.7%), was at commercially unacceptable levels (>1%) in 6 of the 8 cultivars, and for all cultivars combined (2.6%, n = 9491) (Table 1). No codling moth infested fruit were detected in any of the standard treated blocks at the station (Thor Lindstrom personal communication).

Table 1. Percentage of fruit infested with codling moth at harvest

Date evaluated	Cultivar	n	%infested	Range
15 Sept.	Gala	1075	7.0	2.8-14.2
	Prime Gold	2012	1.4	1.0-1.8
22 Sept.	Jonathan	906	7.7	0.8-10.5
	Mutzu	300	5.7	0.0-13.3
29 Sept	Jonathan (border)*	1576	9.1	1.3-21.5
6 Oct.	Ultrastripe**	1308	1.4	0.0-3.6
	Dixiered**	1581	0.9	0.0-3.0
13 Oct	Supreme**	1285	1.1	0.0-2.3
	Idared**	1024	0.9	0.0-2.4
TOTALS		9491	2.6	

* 8 trees evaluated.

** Varieties of 'Red Delicious'.