



Avaunt Tart Cherry EUP Progress Report

Drs. Mark Whalon, Dave Epstein, Larry Gut, Nikki Rothwell, and Lisa Losievsky
Department of Entomology, Michigan State University

Statewide On-Farm Trial of Reduced Risk Insecticides

Reduced risk insecticides were tested for their ability to control tart cherry insect pests in a statewide on-farm trial during the 2004, 2005 and 2006 growing seasons. A total of nine sites were established for this study and are located in the three key tart cherry regions of Michigan. Five sites were located in Northwest region (1 in Antrim Co., 1 in Benzie Co, and 3 in Leelanau Co.), two in Westcentral (1 each in Mason Co. and Oceana Co.) and two in Southwest (both in Van Buren Co.)

Two approximately 10 acre blocks were established on each site. One block received reduced risk insect control strategies (RAMP block). Control decisions in the RAMP block were based on insect monitoring and scouting. The table below lists the reduced risk insecticides used in RAMP blocks. A second block was used to compare reduced risk control strategies with each grower's standard pest control strategies (COMP block).

Insecticide	Active Ingredient	Label Rate (Season limit) oz/acre	Target Insect	Spray Timing	REI PHI
SpinTor™ 2SC (Dow AgroScience)	spinosad	4 - 8 29	green fruitworm leafrollers	Late bud burst/open cluster	4 h 7 d
Avaunt®** (DuPont)	indoxacarb	5 - 6 24	plum curculio	Shuck split, 350 DD ₅₀ after bloom	12 h 14 d
Actara™ 25 WG (Syngenta)	thiamethoxam	4.5 - 5.5 8	cherry fruit fly plum curculio	12 mm fruit	12 h 14 d
Provado® 1.6 Flowable (Bayer CropScience)	imidacloprid	4.0 - 8.0 40	cherry fruit fly	20 - 22 mm fruit	12 h 7 d

** Not currently registered for use in cherries. Experimental Use Permit obtained through EPA and DuPont.

Damage Sampling - Plum curculio

Two extensive samples were conducted during 2004, 2005 and 2006 to determine plum curculio population and damage. The first damage sample was conducted within seven days after shuck split and the second was conducted approximately one week before harvest.

For the early damage sample, 600 (100 in lower canopy and 50 in higher canopy in each directional quadrant) were examined on every other border tree and 25 randomly selected interior trees. The extensive border sample was conducted so that we could

determine where plum curculio hot spots are located and return to these sites for the harvest sample. In general, insect damage was low and we saw no statistical difference between RAMP and COMP blocks.

In the case of plum curculio, there were numerically more oviposition scars in RAMP blocks compared to COMP blocks in five out of nine sites in 2004 and 2005. In 2006, two sites required organophosphate rescue sprays. However, in 8 out of 9 sites from 2004-6, damage was below 0.1% and there were no statistical difference between RAMP and COMP blocks.

Harvest damage samples were conducted one week before harvest. For these samples, we selected 20 border trees (including trees with damage at shuck split) and five interior trees. At least 100 fruit were jarred from trees and fruit were examined for insect injury. Only one fruit was found with a plum curculio sting in all of the blocks in 2004. This fruit was from a RAMP block in Westcentral and did not have a larva inside the fruit. In 2005, a total of 14 fruit were found with plum curculio scars; however, no larvae were found inside the fruit. Only 3 of the 14 fruit were from in RAMP blocks, the remaining 11 were from in COMP blocks. In 2006, a total of 568 fruit were found with plum curculio scars. 14 of these fruit contained larvae; 11 from Westcentral Michigan and 3 from Northwest Michigan; but no rejected loads occurred from inspection by processors.

Damage Sampling – Cherry Fruit Fly

Fruit were also sampled to determine if CFF larvae were present in the fruit at harvest. Since CFF oviposition cannot be visually detected on the fruit, 600 fruit were collected from both the RAMP and COMP block twice, once before harvest and once after harvest. These fruit were placed in containers and pupae were allowed to drop out of the fruit. In 2004, no pupae dropped out of fruit that were collected before harvest. One site in the Southwest had larvae in the fruit after harvest with 3.75% infested fruit in the RAMP block and 1% infested fruit in the COMP block. In 2005, infested fruit were found in two sites. A COMP block in the Southwest region had 1.6% infestation. A RAMP block in the Northwest region had 0.4% infestation. Both of these blocks did not have CFF infestation after harvest. One RAMP and two COMP blocks in the Southwest region had around 4% infestation after harvest. In 2006, a COMP and RAMP block both exhibited infestation at harvest, but no rejected loads resulted from inspection by processors.

Economics

Insecticide cost in COMP blocks average \$40.52 Insecticide cost in RAMP blocks average \$91.45 per acre. The insecticide cost in RAMP blocks was \$51.12 or 2.5 times the cost of COMP blocks. Avaunt® applications constitute an average of 37% of the insecticide cost in RAMP blocks and total amount of formulated product sprayed on RAMP blocks. In both 2005 and 2006 this trend continued with RAMP blocks costing with 2.5 in 2005 and 2.5 in 2006 times greater respectively.

Site-Specific Information: Attached is a listing of site-specific information including location, tart cherry variety and tree age. Spray program and ratings for both RAMP and COMP blocks in 2004 and 2005 are also provided.

SITE 1

Watervliet, MI (VanBuren Co.)

Variety: Montmorency; Conventional Block Tree Age: 11; Reduced Risk Block Tree

Age: 11

2004 Reduced Risk Spray Program

18-May	Spintor	8 oz/acre	Full cover
1-June	Avaunt	6 oz/acre	Full cover
16-June	Actara	4.5 oz/acre	Full cover

2004 Conventional Spray Program

12-May	Guthion	1.5 lb/acre	Full cover
26-May	Imidan	2 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number of Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (6/31)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	3.75%
	COMP	1.00%

Pre Harvest (6/28) Post Harvest (7/13)

2005 Reduced Risk Spray Program

9-June	Avaunt	5 oz/acre	Full cover
22-June	Actara	6 oz/acre	Full cover

2005 Conventional Spray Program

12-May	Lorsban	1.33 lb/acre	Full cover
14-June	Perm Up	8 oz/acre	Alternate row
20-June	Perm Up	6 oz/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/6)

Cherry Fruit Fly Damage Samples

(percent of fruit with pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	3.8%
	COMP	3.6%

Pre Harvest (7/6) Post Harvest (8/9)

2006 Reduced Risk Spray Program

26-May	Avaunt	6 oz/acre	Alternate row
9-June	Actara	5.5 oz/acre	Alternate row
23-June	Provado	6 oz/acre	Alternate row
27-June	Spintor	6 oz/acre	Alternate row
7-July	Provado	8 oz/acre	Alternate row
25-July	Provado	6 oz/acre	Alternate row

2006 Conventional Spray Program

16-May	Lorsban	1.3 lb/acre	Every Middle Application
18-May	Guthion	1.5 lb/acre	Alternate Row Middle Application
26-May	Guthion	1.5 lb/acre	Alternate Row Middle Application
26-May	Lorsban	1.3 lb/acre	Alternate Row Middle Application
1-June	Guthion	1.5 lb/acre	Every Middle Application
24-June	Guthion	1.5 lb/acre	Every Middle Application
5-July	Perm Up	6 oz/acre	Every Middle Application

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	2	0
COMP	10	0

Damage Sample (6/8)

Cherry Fruit Fly Damage Samples
(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	3.8%
	COMP	3.6%

Pre Harvest (7/6) Post Harvest (8/9)

* Actual infestation level undeterminable due to artificial infestation at the holding site:
2005 data were substuted because trapping data indicated similar population trends.

SITE 2

Hartford, MI (VanBuren Co.)

Variety: Montmorency; Conventional Block Tree Age: 12; Reduced Risk Block Tree

Age:12

2004 Reduced Risk Spray Program

18-May	Spintor	8 oz/acre	Full cover
1-June	Avaunt	6 oz/acre	Full cover
15-June	Actara	4.5 oz/acre	Full cover

2004 Conventional Spray Program

10-May	Guthion	1.5 lb/acre	Full cover
25-May	Guthion	1.5 lb/acre	Full cover
7-June	Imidan	2 lb/acre	Full cover
7-June	Imidan	2 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (6/31)

Cherry Fruit Fly Damage Samples
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/28) Post Harvest (7/13)

2005 Reduced Risk Spray Program

4-June	Avaunt	6 oz/acre	Full cover
18-June	Actara	4.5 oz/acre	Full cover

2005 Coventional Spray Program

10-May	Guthion	1.5 lb/acre	Full cover
28-May	Guthion	1.5 lb/acre	Full cover
7-June	Imidan	2 lb/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/6)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	4.0%

Pre Harvest (7/6) Post Harvest (8/9)

2006 Reduced Risk Spray Program

26-May	Avaunt	6 oz/acre	Every Middle Application
7-June	Actara	5.5 oz/acre	Every Middle Application
20-June	Provado	6 oz/acre	Every Middle Application
27-June	Spintor	6 oz/acre	Every Middle Application
19-July	Provado	6 oz/acre	Every Middle Application

2006 Conventional Spray Program

26-May	Guthion	1.3 lb/acre	Every Middle Application
20-June	Guthion	1.3 lb/acre	Alternate Row Middle Application
27-June	Imidan	1.5 lb/acre	Alternate Row Middle Application
4-July	Perm Up	6 oz/acre	Every Middle Application
18-July	Sevin XLR	1 qt/acre	Every Middle Application

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (6/8)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	4.0%

Pre Harvest (7/6) Post Harvest (8/9)

* Actual infestation level undeterminable due to artificial infestation at the holding site: 2005 data were substituted because trapping data indicated similar population trends.

SITE 3

Hart, MI (Oceana Co.)

Variety: Montmorency; Conventional Block Tree Age: 19; Reduced Risk Block Tree

Age:13

2004 Reduced Risk Spray Program

12-June	Actara	4.5 oz/acre	Full cover
22-June	Actara	5.5 oz/acre	Alternate row
10-July	Provado	7.3 oz/acre	Full cover

2004 Conventional Spray Program

26-May	Imidan	1.33 lb/acre	Alternate row
2-June	Imidan	1.33 lb/acre	Alternate row
8-June	Guthion	1.5 lb/acre	Full cover
22-June	Guthion	1.5 lb/acre	Full cover
9-July	Imidan	2.25 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/15)

Cherry Fruit Fly Damage Samples
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/30) Post Harvest (8/1)

2005 Reduced Risk Spray Program

9-June	Avaunt	5 oz/acre	Full cover
25-June	Actara	5 oz/acre	Full cover

2005 Conventional Spray Program

31-May	Lorsban	1.33 lb/acre	Full cover
13-June	Guthion	1.5 lb/acre	Full cover
28-June	Guthion	1.5 lb/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample
(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/8)

Cherry Fruit Fly Damage Sample
(Percent Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	1.6%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/30) Post Harvest (8/1)

2006 Reduced Risk Spray Program

30-May	Avaunt	5.0 oz/acre	Full cover
12-June	Actara	5.0 oz/acre	Full cover
23-June	Sulfur	4.0 qt/acre	Full cover
23-June	Provado	6.4 oz/acre	Full cover
29-June	Sulfur	4 qt/acre	Full cover
29-June	Provado	6.4 oz/acre	Full cover
12-July	Sulfur	4.0 qt/acre	Full cover
12-July	Provado	6.4 oz/acre	Full cover

2006 Conventional Spray Program

30-May	Lorsban	1.33 lb/acre	Half cover
2-June	Guthion	1.5 lb/acre	Half cover
12-June	Guthion	1.5 lb/acre	Half cover
22-June	Sulfur	4.0 qt/acre	Half cover
22-June	Guthion	1.5 lb/acre	Half cover
28-June	Sulfur	4.0 qt/acre	Half cover
28-June	Guthion	1.5 lb/acre	Half cover
2-July	Sulfur	4.0 qt/acre	Full cover

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (6/12)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	1.6%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/30) Post Harvest (8/1)

* Actual infestation level undeterminable due to artificial infestation at the holding site: 2005 data were substituted because trapping data indicated similar population trends.

SITE 4

Bear Lake, MI (Manistee Co.)

Variety: Montmorency; Conventional Block Tree Age: 22; Reduced Risk Block Age: 12

2004 Reduced Risk Spray Program

1-June	Avaunt	6 oz/acre	Full cover
14-June	Avaunt	6 oz/acre	Full cover
28-June	Actara	5.5 oz/acre	Full cover
9-July	Provado	8 oz/acre	Full cover
24-July	Provado	8 oz/acre	Full cover

2004 Conventional Spray Program

1-June	Lorsban	1 lb/acre	Full cover
14-June	Guthion	1.5 lb/acre	Full cover
28-June	Guthion	1.5 lb/acre	Full cover
9-July	Imidan	2.5 lb/acre	Full cover
20-July	Imidan	2.5 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample
(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	1	0
COMP	0	0

Damage Sample (7/15)

Cherry Fruit Fly Damage Sample
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/18) Post Harvest (8/4)

2005 Reduced Risk Spray Program

8-June	Avaunt	6 oz/acre	Full cover
22-June	Actara	4.5 oz/acre	Full cover
5-July	Provado	8 oz/acre	Full cover

2005 Conventional Spray Program

9-June	Lorsban	1 lb/acre	Full cover
21-June	Guthion	1.5 lb/acre	Full cover
5-July	Provado	8 oz/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample
(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	2	0
COMP	1	0

Damage Sample (7/8)

Cherry Fruit Fly Damage Sample
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/20) Post Harvest (8/11)

2006 Reduced Risk Spray Program

31-May	Avaunt	6 oz/acre	Full cover
12-June	Actara	5 oz/acre	Full cover
19-June	Guthion	1.5 lb/acre	Full cover
5-July	Sulfur		Full cover
5-July	Provado		Full cover
18-July	Imidan	2.25 lb/acre	Full cover
18-July	Sulfur	6 lb/acre	Full cover

2006 Conventional Spray Program

31-May	Sulfur	4 lb/acre	Full cover
31-May	Pounce	4.5 oz/acre	Full cover
31-May	Lorsban	1 lb/acre	Full cover
12-June	Guthion	1.5 lb/acre	Full cover
26-June	Ziram		Full cover
26-June	Sulfur		Full cover
26-June	Guthion		Full cover
5-July	Sulfur	6 lb/acre	Full cover
5-July	Imidan	2.25 lb/acre	Full cover
18-July	Imidan	2.25 lb/acre	Full cover
18-July	Sulfur	6 lb/acre	Full cover

2006 Ratings

Plum Curculio Harvest Damage Sample
(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	256	11
COMP	26	0

Damage Sample (6/12)

Cherry Fruit fly Damage Sample
(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (6/20) Post Harvest (8/11)

* Actual infestation level undeterminable due to artificial infestation at the holding site:
2005 data were substituted because trapping data indicated similar population trends.

SITE 5

Honor, MI (Benzie Co.)

Variety: Montmorency; Conventional Block Tree Age: 24; Reduced Risk Block Tree

Age: 23

2004 Reduced Risk Spray Program

11-June	Avaunt	3 oz/acre	Alternate row
23-June	Avaunt	3 oz/acre	Full cover
2-July	Provado	4 oz/acre	Full cover
8-July	Imidan	2 lb/acre	Full cover
13-August	Provado	8 oz/acre	Full cover

2004 Conventional Spray Program

23-June	Imidan	1.1 lb/acre	Full cover
2-July	Imidan	1.1 lb/acre	Full cover
8-July	Imidan	1.5 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (8/1)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/17) Post Harvest (8/10)

2005 Reduced Risk Spray Program

9-June	Avaunt	5 oz/acre	Full cover
25-June	Actara	4.5 oz/acre	Alternate row
2-July	Provado	6 oz/acre	Full cover
6-August	Provado	6 oz/acre	Alternate row

2005 Conventional Spray Program

9-June	Imidan	1 lb/acre	Alternate row
25-June	Imidan	1 lb/acre	Alternate row
2-July	Imidan	1.5 lb/acr	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/15)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/6) Post Harvest (8/11)

2006 Reduced Risk Spray Program

3-June	Avaunt	5 oz/acre	Half cover
20-June	Actara	4.5 oz/acre	Full cover
4-July	Provado	6 oz/acre	Full cover
29-July	Provado	4 oz/acre	Half cover

2006 Conventional Spray Program

4-June	Imidan	1 lb/acre	Full cover
4-July	Imidan	2 lb/acre	Full cover

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	184	0
COMP	49	0

Damage Sample (6/13)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

* Actual infestation level undeterminable due to artificial infestation at the holding site: 2005 data were substituted because trapping data indicated similar population trends.

SITE 6

Suttons Bay, MI (Leelanau Co.)

Variety: Montmorency; Conventional Block Tree Age: 21; Reduced Risk Block Tree

Age: 11/25

2004 Reduced Risk Spray Program

12-June	Avaunt	6 oz/acre	Alternate row
19-June	Avaunt	5 oz/acre	Alternate row
5-July	Imidan	1.5 lb/acre	Alternate row
8-August	Provado	6 oz/acre	Full cover

2004 Conventional Spray Program

5-July	Imidan	1.5 lb/acre	Alternate row
23-July	Imidan	1.5 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/25)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/17) Post Harvest (8/4)

2005 Reduced Risk Spray Program

11-June	Avaunt	5 oz/acre	Full cover
27-June	Actara	5 oz/acre	Full cover
7-July	Provado	6 oz/acre	Full cover
12-July	Provado	6 oz/acre	Full cover
10-August	Envidor	16 oz/acre	Full cover

2005 Conventional Spray Program

26-June	Imidan	1.5 lb/acre	Full cover
6-July	Imidan	1.5 lb/acre	Full cover
16-July	Imidan	1.5 lb/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	1	0
COMP	0	0

Damage Sample (7/22)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/8) Post Harvest (8/11)

2006 Reduced Risk Spray Program

27-May	Avaunt	5.5 oz/acre	Full cover
8-June	Actara	5.5 oz/acre	Full cover
6-July	Provado	8 oz/acre	Full cover
4-August	Provado	6.6 oz/acre	Full cover

2006 Conventional Spray Program

27-May	Lorsban	1.33 lb/acre	Full cover
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8-June	Imidan	1.5 lb/acre	Full cover
6-July	Imidan	1.5 lb/acre	Full cover

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Cherry Fruit Damage Sample

(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/8) Post Harvest (8/11)

* Actual infestation level undeterminable due to artificial infestation at the holding site: 2005 data were substituted because trapping data indicated similar population trends.

SITE 7

Suttons Bay, MI (Leelanau Co.)

Variety: Montmorency; Conventional Block Tree Age: 14; Reduced Risk Block Tree

Age: 10

2004 Reduced Risk Spray Program

18-June	Avaunt	6 oz/acre	Alternate Row
30-June	Actara	5 oz/acre	Alternate Row
10-July	Actara	5 oz/acre	Alternate Row

2004 Conventional Spray Program

11-June	Guthion	0.75 lb/acre	Alternate row
18-June	Guthion	0.75 lb/acre	Alternate row
30-June	Guthion	0.75 lb/acre	Alternate row
10-July	Imidan	1.1 lb/acre	Alternate row
19-July	Imidan	1 lb/acre	Alternate row
23-July	Imidan	1 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm

RAMP	0	0
COMP	0	0

Damage Sample (7/25)

Cherry Fruit Fly Damage Sample
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/16) Post Harvest (8/4)

2005 Reduced Risk Spray Program

10-June	Avaunt	4.28 oz/acre	Full cover
17-June	Actara	4.28 oz/acre	Full cover
8-July	Actara	5 oz/acre	Full cover
24-July	Envidor	8.55 oz/acre	Alternate row

2005 Conventional Spray Program

10-June	Guthion	0.75 lb/acre	Alternate row
18-June	Guthion	0.75 lb/acre	Alternate row
28-June	Guthion	0.63 lb/acre	Alternate row
8-July	Imidan	0.60 lb/acre	Alternate row
13-July	Imidan	1 lb/acre	Full cover
24-July	Apollo	2.4 oz/acre	Alternate row

2005 Ratings

Plum Curculio Harvest Damage Sample
(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	8	0

Damage Sample (7/22)

Cherry Fruit Fly Damage Sample
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/7) Post Harvest (8/11)

2006 Reduced Risk Spray Program

6-June	Actara	4.74 oz/acre	Full cover
9-June	BioCover	0.19 gal/acre	Full cover
9-June	Lorsban	1 pt/acre	Full cover
13-June	Actara	2.31 oz/acre	Half cover
13-June	Actara	2.31 oz/acre	Half cover
29-June	Guthion	1.08 lb/acre	Half cover
29-June	Guthion	1.08 lb/acre	Half cover
21-July	Provado	6.47 oz/acre	Full cover

2006 Conventional Spray Program

2-June	Asana XL	1.6 oz/acre
2-June	Guthion	0.25 lb/acre
9-June	BioCover	0.19 gal/acre
9-June	Lorsban	1 pt/acre
12-June	Guthion	0.5 lb/acre
22-June	Guthion	0.5 lb/acre
29-June	Guthion	0.5 lb/acre
10-July	Imidan	1 lb/acre

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	12	3
COMP	0	0

Damage Sample (6/14)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/7) Post Harvest (8/11)

*Actual infestation level undeterminable due to artificial infestation at the holding site: 2005 data were substituted because trapping data indicated similar population trends.

SITE 8

Northport, MI (Leelanau Co.)

Variety: Montmorency; Conventional Block Tree Age: 14; Reduced Risk Block Tree Age: 10

2004 Reduced Risk Spray Program

3-June	Avaunt	6 oz/acre	Full cover
18-June	Avaunt	6 oz/acre	Full cover
2-July	Actara	3 oz/acre	Full cover
14-July	Imidan	2.25 lb/acre	Full cover
28-July	Spintor	3.2 oz/acre	Full cover
31-July	Provado	6 oz/acre	Full cover

2004 Conventional Spray Program

18-June	Imidan	2.25 lb/acre	Full cover
1-July	Imidan	2.25 lb/acre	Full cover
29-July	Imidan	2.25 lb/acre	Full cover

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (8/10)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/16) Post Harvest (8/4)

2005 Reduced Risk Spray Program

4-June	Avaunt	4.1 oz/acre	Full cover
17-June	Actara	5 oz/acre	Full cover
2-July	Provado	8 oz/acre	Full cover
14-July	Spintor	8 oz/acre	Full cover
23-July	Spintor	8 oz/acre	Full cover

2005 Conventional Spray Program

17-June	Imidan	2 lb/acre	Full cover
17-June	Provado	8 oz/acre	Full cover
2-July	Imidan	2 lb/acre	Full cover
11-July	Imidan	2 lb/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/22)

Cherry Fruit Fly Damage Sample

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/23) Post Harvest (8/11)

2006 Reduced Risk Spray Program

27-May	Avaunt	6 oz/acre	Half cover
1-June	Avaunt	6 oz/acre	Half cover
8-June	Actara	5 oz/acre	Half cover
15-June	Actara	5 oz/acre	Half cover
22-June	Provado	6.4 oz/acre	Half cover
9-July	Provado	6.4 oz/acre	Full cover
19-July	Spintor	6.4 oz/acre	Full cover
20-July	Provado	6.4 oz/acre	Full cover

2006 Conventional Spray Program

15-June	Guthion	1.5 lb/acre	Half cover
22-June	Guthion	1.5 lb/acre	Half cover
9-July	Imidan	2 lb/acre	Full cover

2006 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	15	0
COMP	0	0

Damage Sample (6/13)

Cherry Fruit Fly Damage Samples
(Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

*Actual infestation level undeterminable due to artificial infestation at the holding site:
2005 data were substituted because trapping data indicated similar population trends.

SITE 9

Ellsworth, MI (Antrim Co.)

Variety: Montmorency; Conventional Block Tree Age: 25; Reduced Risk Block Tree

Age: 20

2004 Reduced Risk Spray Program

16-June	Avaunt	6 oz/acre	Alternate row
28-June	Avaunt	6 oz/acre	Alternate row
7-July	Actara	4.5 oz/acre	Alternate row
15-July	Provado	8 oz/acre	Full cover
24-July	Provado	8 oz/acre	Border spray

2004 Conventional Spray Program

16-June	Guthion	2 lb/acre	Alternate row
28-June	Guthion	1.5 lb/acre	Alternate row
7-July	Imidan	2 lb/acre	Alternate row
14-July	Imidan	2 lb/acre	Alternate row

2004 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (7/25)

Cherry Fruit Fly Damage Samples
(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/22) Post Harvest (8/5)

2005 Reduced Risk Spray Program

9-June	Avaunt	6 oz/acre	Alternate row
17-June	Avaunt	6 oz/acre	Alternate row
28-June	Actara	4.5 oz/acre	Full cover
12-July	Provado	8 oz/acre	Full cover
5-August	Acamite	12 oz/acre	Alternate row

2005 Conventional Spray Program

9-June	Guthion	1.5 lb/acre	Alternate row
17-June	Guthion	1.5 lb/acre	Alternate row
28-June	Guthion	1.5 lb/acre	Full cover
14-July	Imidan	1.5 lb/acre	Alternate row
29-July	Acamite	12 oz/acre	Full cover

2005 Ratings

Plum Curculio Harvest Damage Sample

(Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	2	0

Damage Sample (7/23)

Cherry Fruit Fly Damage Samples

(Percent of Fruit with Pupae)

Pre Harvest	RAMP	0.4%
	COMP	0%
Post Harvest	RAMP	0%
	COMP	0%

Pre Harvest (7/19) Post Harvest (8/12)

2006 Reduced Risk Spray Program

3-June	Avaunt	6 oz/acre
4-July	Provado	6.4 oz/acre
12-July	Provado	6.4 oz/acre

2006 Conventional Spray Program

3-June	Guthion	1.5 lb/acre
13-June	Guthion	1.5 lb/acre
4-July	Provado	6.4 oz/acre

2006 Ratings

Plum Curculio Harvest Damage Sample
 (Total Number Stings, Total Number Worms in Fruit)

	PC Sting	Worm
RAMP	0	0
COMP	0	0

Damage Sample (6/8)

Cherry Fruit Fly Damage Sample
 (Percent of Fruit with Pupae)*

Pre Harvest	RAMP	0.4%
	COMP	0%
Post Harvest	RAMP	0%
	CoMP	0%

Pre Harvest (7/19) Post Harvest (8/12)

*Actual infestation level undeterminable due to artificial infestation at the holding site:
 2005 data were substituted because trapping data indicated similar population trends.