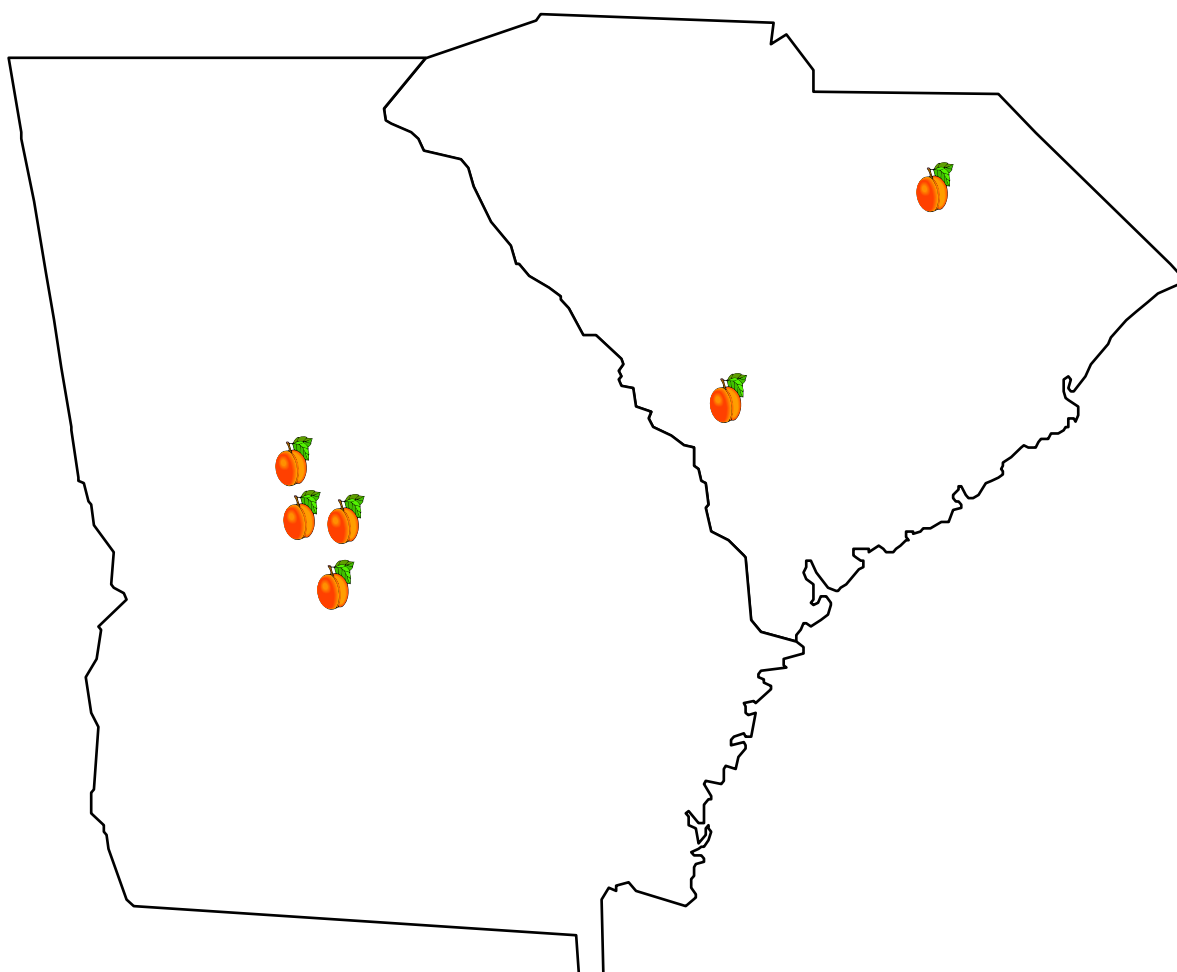


2008 Georgia-South Carolina On-Farm Peach Insect IPM Efficacy Assessment in Systems Protected Orchards

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Abstract: Georgia and South Carolina peach producers would like to reacquire approval to export un-fumigated peaches to Mexico. **Well established in-orchard pest management practices, also known as systems approach pest management, are proposed as an alternative to post-harvest methyl bromide fumigation to provide assurance of freedom from internal fruit feeding insect larvae.**

In 2008, on-farm and packing house evaluations were conducted at four farms in Georgia and two in South Carolina. **In-orchard pest monitoring supported our contention of low pest incidence in systems protected orchards. In the packing houses, individual examination of over 28,000 fruit indicated complete protection of fruit from internal fruit feeding pests.** Eighteen orchard blocks (early-, mid- & late-season cultivars from six farms) were sampled in-orchard by trapping for a variety of pests of known or potential concern. Individual harvested fruit were carefully examined by trained university personnel; all fruit except for completely unflawed #1 fruit were cut. Fruit samples were taken two times in each block, normally from the first significant picking and the last picking.

One of 18 sample blocks was dropped from the system-approach evaluation after frost reduced its crop load to a level which no longer justified regular pesticide application. This block suffered a similar cold induced crop loss in 2007. **Data were collected from this reduced crop block to afford an alternative perspective of our systems approach pest management program's efficacy vs. internal feeding insect pests. Control was good, even though this block received only 35-40% of the prescribed insecticide applications over two consecutive seasons. The 2008 season's one incidence of wormy fruit, again, in a block dropped from the system's protected cohort because of low yield, had a one-time control breach in which 6 of 400 #2 fruit, from this chronically under-sprayed block contained plum curculio (*Conotrachelus nenuphar*) larvae. #1 and cull fruit from this block were completely free of internal fruit feeding pests.**

Methods & Materials

2008 In-Orchard Pest Monitoring. Pest insect incidence in sample blocks was monitored by season-long monitoring (dates recorded in tables) employing two traps per species in each of 18 blocks. Specimens trapped were removed, labeled as to date, orchard, cultivar, trap and forwarded to designated taxonomic specialists with University of Georgia, Clemson University and/or USDA, APHIS.

2008 Examination of Harvested Fruit. #1, #2 and Cull (throw away) fruit were taken from harvested fruit as sub-samples representative of the 1st, 2nd, 3rd or final 25% of each day's packing house run on two separate sample dates from each block. Whenever possible, fruit samples were pulled by university personnel. On occasions when multiple blocks were harvested on the same days, cooperating growers pulled samples, which were secured in cold storage after they were clearly marked as research/not for sale and designated as to block, cultivar, sub-sample #, date and grade.

Results

2008 In-Orchard Pest Monitoring. Trap capture data are presented by farm (1-6), in early-, mid- and late-season cultivar from each farm. Sample orchards were monitored from the date of trap placement through harvest. Pheromone trap baits were replaced every 4 weeks to ensure bait freshness. Acronyms used in the tables which follow are:

Abbreviation	Common Name	Taxonomic Name
PC	Plum Curculio	Coleoptera: Curculionidae, <i>Conotrachelus nenuphar</i>
OFM	Oriental Fruit Moth	Lepidoptera: Tortricidae, <i>Grapholita molesta</i>
CM	Codling Moth	Lepidoptera: Tortricidae, <i>Cydia pomonella</i>
TABM	Tufted Apple Bud Moth	Lepidoptera: Tortricidae, <i>Platynota idaeusalis</i>
OBLR	Obliquebanded Leafroller	Lepidoptera: Tortricidae, <i>Choristoneura rosaceana</i>
VLR	Variegated Leafroller	Lepidoptera: Tortricidae, <i>Platynota flavedana</i>
FTLR	Fruittree Leafroller	Lepidoptera: Tortricidae, <i>Archips argyrospila</i>
LBAM	Light Brown Apple Moth	Lepidoptera: Tortricidae, <i>Epiphyas postvittana</i>

Plum curculio (PC) is the key fruit feeding insect in the southeastern U.S.A. Plum curculio is the driving force justifying most of the in-season insecticide employed in systems-protected Georgia and South Carolina peaches. Sampling technologies for plum curculio are inadequately sensitive to provide reliable data with the low plum curculio numbers which must be maintained at very low abundance in well managed orchards. Accordingly, insecticide use targets all potential periods when plum curculio might infest the fruit, which given the risk of migration from wild hosts is from shuck split until our last pre-harvest spray.

Oriental Fruit Moth (OFM) is a key fruit feeding pest of peaches in most major peach production areas worldwide. **However, in the southeastern U.S., oriental fruit moth is a minor pest, very much subordinate to plum curculio.** Pest management practitioners in the region do not consider oriental fruit moth as a key pest or driver of pest management decisions (Cochran et al. 1955, Horton et al. 2008 & 2009). In-orchard trap captures underscore the low frequency of oriental fruit moth in well maintained Georgia and South Carolina orchards. **Farm 4's sample mid-season Harvester block was almost dropped from the system protected cohort due to low yield. It received a reduced level of spray, which was reflected in the abnormally high moth captures, but neither oriental fruit moth injury nor larvae were found in harvested fruit.**

Codling moth (CM) is a major, cosmopolitan pest of apples and pears. In the western U.S.A., codling moth can be a serious pest of plums and prunes. However, even though codling moth is listed as an occasional pest of peaches in California, actual codling moth infestations there are uncommon and almost always associated with heavy infestations in adjoining apple or pear orchards. **In the southeastern U.S.A., codling moth is not considered a pest of peaches, even when grown adjacent to apples or pears. No codling moth adults were trapped in any of the 18 Georgia and South Carolina peach orchards monitored in 2008.**

Tufted apple bud moth (TABM) is an occasional pest of peaches in the Mid-Atlantic region of the U.S.A. (Myers and Hull 2003). However, in the senior author's 25 years of work with Georgia and South Carolina peaches, he has never observed tufted apple bud moth as a foliar or fruit attacking peach pest in any of Georgia or South Carolina's major peach producing areas. Even in abandoned or unsprayed experiment station blocks, tufted apple bud moth has not been observed in any of Georgia or South Carolina's key peach producing areas. The timing of modest numbers of moths in mid-May is ca. two weeks earlier than this generation of moths appearance in north Georgia apples. In apples, larvae of this generation feed on foliage. Peach in all of Georgia and South Carolina's major production areas are harvested before a second generation of tufted apple bud moth, which in apples commonly feeds on fruit and foliage, would be expected. Pheromone trapping and a degree day model would make it easy to time sprays, if at some point in the future tufted apple bud moth acquired a taste for southeastern peaches.

Horton has seen tufted apple bud moth two times in peaches, both in Gilmer County, Georgia, a small apple and peach producing area on the Georgia-Tennessee border at ca. 2,000 elevation. Climatic conditions in this mountainous area resemble those of the Mid-Atlantic fruit growing region, but are distinctly cooler than all other Georgia or South Carolina peach producing areas.

Obliquebanded leafroller (OBLR), variegated leafroller (VLR) and fruittree leafroller (FTLR) are occasionally caught in pheromone traps in north Georgia apples. While each of these species are apple pests of some significance in certain of North America's cooler production areas, none of the three are seen as more than a tertiary pest of apples in the southeastern U.S.A. None of these leafroller species have been reported as pests of peaches in the Southeast. The timing of obliquebanded leafroller adult captures in Georgia and South Carolina peaches is quite similar to that of tufted apple bud moth.

Light brown apple moth (LBAM) is not known to be present in the U.S.A. outside of select areas in California. However, given light brown apple moth's potential risk as a pest of concern in export fruit, we sampled to substantiate more extensive surveys conducted in the region by USDA, PPQ. No moths were captured in our samples.

Table 1. On-Farm Insect Monitoring

Farm 1
Early (Goldprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	*	*	0	0	0	0	0	0	0	0
7-May	0	0	0	0	0	0	*	*	0	0	0	0	0	0	0	0
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	2	1	3	3	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	2	0	2	2			0	0	0	0

* traps had not been placed on these dates

Farm 1
Midseason (Harvester)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T1	T2	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
26-May	0	0	0	0	9	0	0	6	0	0	0	0	0	0	0	0
4-Jun	0	0	0	3	0	0	0	3	1	9	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jun	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 1
Late (Sunprince)

Date	PC		OFM		CM		TABM		VLR		OBLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	1	*	*	0	0	0	0	0	0	0	0	0	0
7-May	0	0	0	0	*	*	0	0	0	0	0	0	0	0	0	0
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 2
Early (Juneprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Farm 2
Midseason (Cary Mac)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Farm 2
Late (Cresthaven)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Farm 3
Early (Goldprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
7-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	4	4	1	3	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	3	3	1	2	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 3
Midseason (PF15)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
7-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0
26-May	0	0	0	0	0	0	4	3	2	1	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 3
Late (Flameprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	1	0	0	0	0	0	0	0	0	0	0	*	*
7-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	3	3	1	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	5	0	2	1	0	0	0	0	0	0
4-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	1	5	5	0	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	1	3	2	1	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
14-Jul	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0
21-Jul	0	0	0	0	0	0	0	1			0	1	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 4
Early (Goldprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
8-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0
2-Jun	0	0	0	0	0	0	3	3	0	2	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 4
Midseason (Harvester)

[Removed from System-Protected Efficacy Evaluation after a Late Frost, Data Show Increased Captures in a Block which Received ca. 35-40% of Prescribed In-Season Insecticide Applications in 2007 & 2008]

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	2	5	0	0	0	0	0	0	0	0	0	0	*	*
8-May	0	0	56	30	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	20	15	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	3	2	0	0	14	18	9	5	0	0	0	0	0	0
26-May	0	0	25	0	0	0	7	6	4	2	0	0	0	0	0	0
2-Jun	0	0	68	56	0	0	1	8	2	1	0	0	0	0	0	0
10-Jun	0	0	69	25	0	0	0	3	1	2	0	0	0	0	0	0
19-Jun	0	0	130	60	0	0	2	4	3	1	0	0	0	0	0	0
23-Jun	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 4
Late (Flameprince)

Date	PC		OFM		CM		TABM		VLR		OBLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
8-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
13-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
26-May	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
2-Jun	0	0	0	0	0	0	17	6	0	1	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	5	1	1	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	3	0	3	5	0	0	0	0	0	0
17-Jul	0	0	0	7	0	0	0	0	2	0	0	0	0	0	0	0
24-Jul	0	0	0	7	0	0	0	1	0	1	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 5
Early (Goldprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0			0	0	0	0	0	0	0	0	*	*
8-May	0	0	0	0			0	0	0	0	0	0	0	0	*	*
12-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0
2-Jun	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 5
Midseason (Harvester)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
8-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
12-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
2-Jun	0	0	0	0	0	0	2	2	0	1	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 5
Late (Flameprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
29-Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
8-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
12-May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-May	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
26-May	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0
2-Jun	0	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0
22-Jul	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
1-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Aug	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0

* traps had not been placed on these dates

Farm 6
Early (Rubyprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
9-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jun	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2-Jul	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6-Aug	0	0	0	0	0	0	0	0	1	0			0	0	0	0
25-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Farm 6
Midseason (Fireprince)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
9-Jun	0	0	0	0	0	0	0	0	4	0			0	0	0	0
18-Jun	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
2-Jul	0	0	0	0	0	0	0	0	9	9	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0	6	2	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
6-Aug	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
25-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Farm 6
Late (Tyler)

Date	PC		OFM		CM		TABM		OBLR		VLR		FTLR		LBAM	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
9-Jun	0	0	0	0	0	0	0	0	0	0			0	0	0	0
18-Jun	0	0	0	0	0	0	0	0	14	5	0	0	0	0	0	0
2-Jul	0	0	0	0	0	0	0	0	15	22	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0	10	20	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
6-Aug	0	0	0	0	0	0	0	0	3	7	0	0	0	0	0	0
25-Aug	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0
5-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Packing House Fruit Assessments.

In 2008, the Georgia-South Carolina systems-approach of insect pest management provided flawless protection of the 28,000+ fruit which were individually scrutinized.

In the 17 blocks which cropped well enough to justify the expense of a spray program, 100% of the fruit, #1, #2 and culls, were free from fruit feeding insects (Table 2). The one block dropped from our cohort of systems-protected evaluation because of frost-induced crop loss experienced plum curculio in 01.5% of the #2 fruit. This block suffered severe cold-induced crop loss in 2007 and 2008. Its insecticide inputs were estimated to be ca 35-40% of the prescribed insecticide applications for systems-protected orchards. Even with two years of reduced insecticide application, there were no internal fruit feeding insects in #1 fruit.

Table 2. 2008 Assessment of Harvested Fruit as an Indicator of Pest Management Program Efficacy.

Farm #	Variety/ Date Inspected	No. Culls (throw-away fruit) Sampled by Date/Farm	% Cull Fruit with External Insect Injury	% Cull Fruit with Internal Insect Injury	No. #2s Sampled by Date/Farm	% #2 Fruit with External Insect Injury	% #2 Fruit with Internal Fruit-Feeding Insects	No. #1 Sampled by Date/Farm	% #1 Fruit with External Insect Injury	% #1 Fruit with Internal Insect Injury
4	Goldprince/29-May	400	2.50	0	400	4.75	1.50 <i>*(6 plum curculio larvae, all from one 25% subsample)</i>	200	0	0
3	Goldprince/30-May	400	0.50	0	400	1.50	0	200	0	0
4	Goldprince/02-Jun	400	0.75	0	400	1.25	0	200	0	0
5	Goldprince/02-Jun	400	0.25	0	400	0.75	0	200	0	0
6	Rubyprince/09-Jun	400	0	0	400	0	0	200	0	0
2	Juneprince/12-Jun	400	0	0	400	0	0	200	0	0
1	Harvester/18-Jun	400	1.25	0	400	0.25	0	200	0	0
3	PF15/18-Jun	374	0	0	400	0.75	0	200	0	0
6	Rubyprince/18-Jun	400	0	0	400	0.25	0	200	0	0
4	Harvester/19-Jun	400	1.00	0	400	2.00	0	200	0	0
5	Harvester/25-Jun	400	0	0	400	0.50	0	200	0	0
2	Juneprince/25-Jun	400	0	0	400	0	0	200	0	0
2	Cary Mac/26-Jun	400	0	0	400	0	0	200	0	0
1	Harvester/27-Jun	350	0	0	350	0	0	175	0	0
4	Harvester/27-Jun	400	0	0	400	0.25	0	200	0	0
3	PF15/02-Jul	400	1.75	0	400	1.25	0	200	0	0
6	Fireprince/07-Jul	400	0	0	400	0.75	0	200	0	0
2	Cary Mac/07-Jul	400	0	0	400	0	0	200	0	0

Farm #	Variety/ Date Inspected	No. Culls (throw-away fruit) Sampled by Date/Farm	% Cull Fruit with External Insect Injury	% Cull Fruit with Internal Insect Injury	No. #2s Sampled by Date/Farm	% #2 Fruit with External Insect Injury	% #2 Fruit with Internal Fruit-Feeding Insects	No. #1 Sampled by Date/Farm	% #1 Fruit with External Insect Injury	% #1 Fruit with Internal Insect Injury
6	Fireprince/18-Jul	400	0	0	396	1.00	0	200	0	0
1	Sunprince/21-Jul	400	5.75	0	400	0	0	200	0	0
2	Cresthaven/28-Jul	400	0	0	400	0	0	200	0	0
1	Sunprince/30-Jul	400	4.75	0	400	1.25	0	200	0	0
3	Flameprince/31-Jul	400	1.75	0	400	0.75	0	0	--	--
5	Flameprince/01-Aug	400	0	0	400	0	0	200	0	0
4	Flameprince/04-Aug	400	1.25	0	400	1.25	0	200	0	0
2	Cresthaven/06-Aug	400	0	0	400	0	0	200	0	0
4	Flameprince/07-Aug	0 *no culls	--	--	400	6.25	0	200	0	0
3	Flameprince/08-Aug	400	0.75	0	400	0	0	200	0	0
5	Flameprince/08-Aug	400	0.75	0	400	2.00	0	200	0	0
6	Tyler/25-Aug	365	1.09	0	370	1.89	0	200	0	0
6	Tyler/05-Sep	400	0.50	0	400	0	0	200	0	0
		total number cull fruit examined 11,889			total number #2 fruit examined 12,316			total number #1 fruit examined 5,975		

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