scaffolds FRUIT JOURNAL

Update on Pest Management and Crop Development

September 4, 2018 VOLUME 27, No. 24 Geneva, NY

INSECTS

GIVE OR TAKE

PAR FOR THE COURSE (Art Agnello, Entomology, Geneva; ama4@cornell.edu)

vv This season had similar weather patterns and pest occurrence to some previous years, but was distinctly different from 2017. Insect trap numbers are only one index of the variability inherent in New York orchard systems from one year to the next. We'll have to wait a bit to see how crop size and quality was affected by the 2018 growing conditions, but for now at least, we do have the pest numbers from pheromone traps in our NYSAES research orchards. Following are summarized comparative listings of some of the pest events (for the "usual" species) and crop development stages that occurred this season (in Geneva) with calendar and degree-day means; these used to go by the term "normal" values, but somehow this doesn't seem quite appropriate, as most years tend to be anything but normal. The values and dates are given +/- one standard deviation; i.e., events should occur within the stated range approximately 7 years out of 10.

	DATE		DEGREE DAYS(BASE 43 °F)	
PEST EVENT	**Mean (+/-days)**	**2018**	**Mean (+/-DD)**	**2018**
APPLE MAGGOT				
1st catch	3-Jul(+/-11)	30-Jul	1480(+/-263)	2235
Peak	5-Aug(+/-10)	3-Aug	2383(+/-253)	2350
BLACK STEM BORER (Sodus)				
1st catch	3-May(+/-9)	8-May	310(+/-54)	306
1st flight peak	1-Jun(+/-11)	31-May	766(+/-149)	756
1st flight subsides	14-Jun(+/-10)	13-Jun	1023(+/-191)	1005

continued...

BALDWIN

IN THIS ISSUE...

PEST EVENT	DATE Mean (+/-days)	DATE 2018	DEGREE DAYS(BASE 43 °F) Mean (+/-DD)	DEGREE DAYS(BASE 43 °F) 2018
CODLING MOTH				
1st catch	18-May(+/-7)	21-May	482(+/-82)	467
1st flight peak	3-Jun(+/-12)	1-Jun	776(+/-210)	752
1st flight subsides	6-Jul(+/-12)	9-Jul	1558(+/-273)	1636
2nd flight start	20-Jul(+/-13)	16-Jul	1904(+/-317)	1847
2nd flight peak	5-Aug(+/-13)	27-Jul	2313(+/-359)	2159
DOGWOOD BORER				
1st catch	12-Jun(+/-10)	11-Jun	983(+/-232)	929
Peak	8-Jul(+/-10)	2-Jul	1619(+/-217)	1434
GREEN FRUITWORM				
1st catch	6-Apr(+/-8)	23-Apr	98(+/-48)	83
Peak	18-Apr(+/-8)	27-Apr	162(+/-67)	116
Flight subsides	10-May(+/-11)	29-May	383(+/-116)	663
LESSER PEACHTREE BORER				
1st catch	24-May(+/-8)	21-May	572(+/-96)	467
Peak flight	28-Jun(+/-18)	2-Jul	1319(+/-440)	1434
OBLIQUEBANDED LEAFROLLER				
1st catch	8-Jun(+/-6)	4-Jun	887(+/-91)	812
1st flight peak	16-Jun(+/-7)	15-Jun	1030(+/-184)	1009
1st flight subsides	17-Jul(+/-7)	20-Jul	1843(+/-206)	1955
2nd flight begins	7-Aug(+/-9)	30-Jul	2417(+/-204)	2235

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BLUE PEARMAIN

scaffolds
is published weekly from March to September by Cornell University—NYS Agricultural Experiment Station (Geneva) and Ithaca—with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 2 pm Monday to:

scaffolds FRUIT JOURNAL
Dept. of Entomology
NYSAES, Barton Laboratory
Geneva, NY 14456-1371
Phone: 315-787-2341
FAX: 315-787-2326
E-mail: ama4@cornell.edu

Editor: A. Agnello

This newsletter available online at:
http://www.scaffolds.entomology.cornell.edu/index.html

PEST EVENT	DATE Mean (+/-days)	2018	DEGREE DAYS(BASE 43 °F) Mean (+/-DD)	2018
ORIENTAL FRUIT MOTH				
1st catch	2-May(+/-8)	17-May	271(+/-50)	210
1st flight peak	14-May(+/-11)	19-May	432(+/-101)	350
1st flight subsides	12-Jun(+/-8)	7-Jun	962(+/-136)	851
2nd flight begins	29-Jun(+/-5)	25-Jun	1365(+/-125)	1239
2nd flight peak	11-Jul(+/-9)	20-Jul	1712(+/-248)	1955
2nd flight subsides	31-Jul(+/-7)	30-Jul	2273(+/-244)	2235
3rd flight begins	10-Aug(+/-9)	3-Aug	2525(+/-275)	2350
PEACHTREE BORER				
1st catch	16-Jun(+/-11)	11-Jun	1047(+/-266)	929
Peak flight	5-Jul(+/-19)	16-Jun	1538(+/-478)	1847
REDBANDED LEAFROLLER				
1st catch	16-Apr(+/-9)	23-Apr	145(+/-33)	83
1st flight peak	3-May(+/-10)	17-May	307(+/-75)	407
1st flight subsides	1-Jun(+/-8)	7-Jun	751(+/-142)	851
2nd flight begins	29-Jun(+/-6)	25-Jun	1376(+/-175)	1239
2nd flight peak	13-Jul(+/-7)	6-Jul	1745(+/-221)	1573
2nd flight subsides	8-Aug(+/-10)	6-Aug	2439(+/-266)	2506
3rd flight begins	19-Aug(+/-10)	10-Aug	2726(+/-215)	2548
SPOTTED TENTIFORM LEAFMINER				
1st catch	20-Apr(+/-9)	2-May	168(+/-49)	156
1st flight peak	7-May(+/-8)	7-May	336(+/-69)	265
1st flight subsides	5-Jun(+/-9)	4-Jun	812(+/-132)	812
2nd flight begins	16-Jun(+/-7)	18-Jun	1071(+/-87)	1089
2nd flight peak	7-Jul(+/-8)	2-Jul	1581(+/-196)	1434
2nd flight subsides	28-Jul(+/-8)	20-Jul	2169(+/-180)	1955
3rd flight begins	6-Aug(+/-8)	30-Jul	2428(+/-195)	2235
3rd flight peak	19-Aug(+/-9)	13-Aug	2770(+/-219)	2625

CROP PHENOLOGY	DATE Mean (+/-days)	2018	DEGREE DAYS (BASE 43°F) Mean (+/-DD)	2018
APPLE (MCINTOSH)				
Silver tip	7-Apr(+/-7)	9-Apr	84(+/-22)	65
Green tip	13-Apr(+/-9)	27-Apr	122(+/-23)	128
Half-inch green	20-Apr(+/-8)	2- May	175(+/-25)	156
Tight cluster	27-Apr(+/-8)	4-May	231(+/-25)	210
Pink	3-May(+/-7)	10-May	292(+/-24)	317
Bloom	10-May(+/-6)	14-May	379(+/-35)	350
Petal fall	17-May(+/-6)	23-May	482(+/-41)	506
Fruit set	22-May(+/-6)	25-May	552(+/-43)	554

continued...

CROP PHENOLOGY	DATE Mean (+/-days)	2018	DEGREE DAYS (BASE 43°F) Mean (+/-DD)	2018
APPLE (RED DELICIOUS)				
Silver tip	8-Apr(+/-8)	13-Apr	95(+/-17)	72
Green tip	14-Apr(+/-9)	30-Apr	137(+/-26)	128
Half-inch green	20-Apr(+/-10)	2-May	189(+/-26)	156
Tight cluster	26-Apr(+/-10)	4-May	248(+/-29)	210
Pink	5-May(+/-8)	10-May	327(+/-37)	317
King bloom	8-May(+/-7)	12-May	373(+/-54)	335
Bloom	13-May(+/-7)	14-May	417(+/-46)	350
Petal fall	20-May(+/-7)	23-May	525(+/-66)	506
Fruit set	23-May(+/-6)	25-May	566(+/-50)	554
APPLE (EMPIRE)				
Silver tip	7-Apr(+/-8)	9-Apr	88(+/-13)	65
Green tip	16-Apr(+/-5)	27-Apr	119(+/-24)	116
Half-inch green	19-Apr(+/-10)	2-May	170(+/-29)	156
Tight cluster	25-Apr(+/-11)	4-May	224(+/-28)	210
Pink	1-May(+/-9)	10-May	289(+/-26)	317
King bloom	3-May(+/-7)	1-May	335(+/-23)	353
Bloom	9-May(+/-6)	14-May	380(+/-30)	350
Petal fall	18-May(+/-6)	23-May	485(+/-38)	506
Fruit set	22-May(+/-6)	25-May	540(+/-38)	554
PEACH				
Swollen bud	12-Apr(+/-8)	9-Apr	111(+/-30)	65
Bud burst	19-Apr(+/-11)	1-May	156(+/-32)	135
Half-inch green	26-Apr(+/-8)	3-May	196(+/-23)	186
Pink	26-Apr(+/-10)	5-May	229(+/-29)	231
Bloom	2-May(+/-9)	10-May	291(+/-35)	317
Petal fall	12-May(+/-8)	21-May	413(+/-54)	467
Fruit set	20-May(+/-4)	25-May	519(+/-40)	554
PEAR				
Swollen bud	9-Apr(+/-10)	30-Apr	106(+/-32)	128
Bud burst	18-Apr(+/-9)	2-May	160(+/-28)	156
Green cluster	26-Apr(+/-9)	4-May	232(+/-22)	210
White bud	2-May(+/-8)	8-May	280(+/-29)	272
Bloom	6-May(+/-8)	14-May	341(+/-38)	350
Petal fall	13-May(+/-8)	21-May	422(+/-38)	467
Fruit set	17-May(+/-8)	25-May	482(+/-55)	554

continued...

CROP PHENOLOGY	DATE Mean (+/-days)	2018	DEGREE DAYS (BASE 43°F) Mean (+/-DD)	2018
PLUM				
Swollen bud	11-Apr(+/-12)	13-Apr	125(+/-44)	72
Bud burst	20-Apr(+/-11)	30-Apr	175(+/-40)	128
Green cluster	28-Apr(+/-8)	2-May	221(+/-43)	156
White bud	26-Apr(+/-11)	4-May	237(+/-32)	210
Bloom	2-May(+/-11)	7-May	297(+/-39)	265
Petal fall	10-May(+/-8)	14-May	389(+/-38)	350
Fruit set	16-May(+/-9)	21-May	462(+/-43)	467
SWEET CHERRY				
Swollen bud	11-Apr(+/-9)	27-Apr	106(+/-28)	116
Bud burst	19-Apr(+/-9)	2-May	167(+/-26)	156
White bud	27-Apr(+/-8)	4-May	222(+/-25)	210
Bloom	2-May(+/-8)	7-May	278(+/-22)	265
Petal fall	10-May(+/-6)	14-May	387(+/-32)	350
Fruit set	14-May(+/-6)	21-May	436(+/-44)	467
TART CHERRY				
Swollen bud	12-Apr(+/-8)	23-Apr	112(+/-41)	83
Bud burst	23-Apr(+/-7)	2-May	196(+/-36)	156
White bud	1-May(+/-7)	8-May	261(+/-23)	272
Bloom	7-May(+/-6)	10-May	340 (+/-39)	317
Petal fall	16-May(+/-6)	22-May	444(+/-43)	486
Fruit set	20-May(+/-7)	25-May	506(+/-60)	554

STICKING TO IT

SOMETHING IN THE AIR
(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

❖❖ With this issue, Scaffolds ceases publication for the season; we expect to start up again next March. In March, as usual, we'll send out an email to all current subscribers to verify addresses for next year's mailing list. Our thanks to all of you who have sent comments, suggestions, and articles our way, a practice we hope you'll continue. As a wrap-up, here's our annual summary of the year's pheromone trap results and an Index of Volume 27, 2018 of Scaffolds Fruit Journal.

KEY = GFW - Green Fruitworm; RBLR - Red-banded Leafroller; STLM - Spotted Tentiform Leafminer; OFM - Oriental Fruit Moth (in apples); CM - Codling Moth; LPTB - Lesser Peachtree Borer (in peach); DWB - Dogwood Borer; OBLR - Obliquebanded Leafroller; PTB - Peachtree Borer; AM - Apple Maggot; * - first catch of the generation.

Geneva Pest Trapping Results - Avg/Trap

DATE	GFW	RBLR	STLM	OFM	CM	LPTB	SJS	OBLR	DWB	PTB	AM
4/23	0.5*	0.5*									
4/27	1.0	5.5									
4/30	0.0	1.5									
5/2	1.0	31.0	1.0*								
5/4	0.0	59.0	3.5	1.0*							
5/7	0.0	-	15.0	3.0							
5/10	0.5	56.0	8.5	42.5							
5/14	0.5	49.0	7.0	1.5							
5/17	0.5	85.0	13.5	90.0							
5/21	0.0	78.0	9.0	81.0	0.5*	0.5*					
5/25	0.5	55.0	8.0	70.0	19.0	25.0					
5/29	0.0	59.0	9.5	31.0	41.0	36.5	266.0*				
6/1	0.0	14.0	2.5	21.0	48.0	7.5	15.8				
6/4	0.0	1.5	0.0	7.0	22.0	2.0	0.5	1.0*			
6/7		0.0	0.0	0.0	5.5	2.0	0.0	0.5			
6/11		0.5	0.0	0.5	27.0	9.0	0.0	1.5	1.0*	1.5*	
6/15		0.0	0.0	1.0	37.0	12.0		7.5	0.0	3.0	
6/18		0.5	20.0	1.0	37.5	11.0		2.0	2.0	4.0	
6/22		0.0	19.5	1.0	29.0	-		1.0	-	-	
6/25		1.0	10.0	4.5	6.0	11.0		1.0	0.5	2.5	
6/29		4.5	22.5	21.0	10.0	9.5		1.0	2.5	6.5	
7/2		7.5	62.5	18.0	5.0	15.0		0.5	9.0	6.0	
7/6		10.5	55.5	74.5	9.5	3.5		2.5	0.0	10.5	
7/9		6.5	23.5	63.5	4.0	2.0		1.0	0.0	8.5	
7/13		5.5	24.5	78.0	7.0	-		1.5	0.0	-	
7/16		2.5	13.5	81.0	16.5	8.5		0.5	0.0	25.0	
7/20		2.5	2.5	48.5	15.0	1.0		0.0	-	10.0	
7/23		1.0	4.5	23.5	26.0	1.0		0.0	0.5	5.5	
7/27		0.5	4.5	25.5	46.5	1.0		0.0	0.0	8.0	
7/30		0.5	25.5	17.0	38.0	2.5		1.0*	0.0	7.0	2.0*
8/3		0.5	76.0	26.5	32.5	2.0		0.5	0.0	5.0	3.0
8/6		0.0	93.0	38.5	32.5	4.0		0.5	0.0	4.5	1.7
8/10		2.5	91.5	46.0	44.0	11.0		1.0	0.0	5.5	0.7
8/13		1.5	111.0	35.5	34.5	6.0		0.0	-	2.0	0.0
8/17		5.0	44.5	64.5	45.5	7.5		0.5		1.0	0.7
8/20		1.5	23.5	52.0	16.5	4.0		1.0		0.0	0.3
8/27		8.0	51.5	119.5	57.5	8.0		0.5		2.0	0.3

HUDSON VALLEY INSECT KEY = GFW - Green Fruitworm; RBLR - Redbanded Leafroller; STLM - Spotted Tentiform Leafminer; OFM - Oriental Fruit Moth (in apples); LAW - Lesser Appleworm; CM - Codling Moth; SJS - San Jose scale; OBLR - Obliquebanded Leafroller; SPAR - Sparganothis fruitworm; TABM - Tufted apple bud moth; DWB - Dogwood borer; AM - Apple Maggot; * - first catch of the generation.

Hudson Valley (Highland) Pest Trapping Results - Avg/Trap

DATE	GFW	RBLR	STLM	LAW	OFM	CM	SJS	OBLR	DWB	TABM	SPAR	AM
3/28	0.5*	0.0	0.0									
4/2	1.0	2.0*	0.0									
4/9	0.0	0.0	0.0									
4/16	0.0	28.0	0.0									
4/23	0.5	8.5	3.0*	1.5*								
4/30	0.0	97.5	29.0	4.5								
5/7	0.0	153.5	42.5	0.0	52.0*							
5/14	0.0	132.0	17.0	0.0	139.5	0.5*						
5/21	0.0	40.5	10.5	0.0	129.0	7.7	31.0*					
5/29	0.0	20.0	7.5	7.0*	73.5	65.0	5693					
6/4		3.0	1.5	3.3	13.5	58.5	17.0	8.0*	1.5*			
6/11		0.0	4.0	3.0	23.5	26.5	0.0	21.5	1.5			
6/18		4.0	40.5	2.0	0.5	40.0	1.0	46.0	1.5			
6/25		18.5	56.0	0.5	5.0	49.0	0.0	53.0	0.0	23.0*	7.0*	
7/2		31.0	89.0	0.5	0.0	13.5	0.0	17.0	0.5	12.0	11.0	1.8*
7/9		60.5	65.5	0.0	1.5	7.5	7.0*	17.0	1.0	4.5	7.5	4.3
7/16		75.0	57.0	0.0	0.0	34.5	269.0	0.0	2.5	1.5	3.5	3.0
7/23		24.5	21.0	0.0	0.0	45.5	445.5	0.0	-	0.0	0.0	3.8
7/30		11.5	86.0	0.5	1.5	45.5	1328	1.0	-	0.0	0.0	10.3
8/6		8.5	140.0	0.5	1.0	26.0	1655	0.0	4.5	0.0	0.0	7.5
8/13		9.5	114.0	0.5	1.0	1.5	-	1.0	3.5	0.0	0.5	10.0
8/20		48.0	54.5	1.5	5.0	12.0	134.0	0.5	1.0	2.5	2.5	8.3
8/27		66.0	20.0	1.0	3.0	8.5	67.0	0.0	3.5	12.5	6.0	4.0
9/4		51.5	52.0	5.0	16.0	3.5	232.0	1.5	1.0	19.5	4.0	3.0

GENERAL INFO

EVENT ANNOUNCEMENTS

CORNELL FRUIT PEST
CONTROL FIELD DAYS
& Networking Lunch with Industry

The Cornell Fruit Pest Control Field Days will take place during Labor Day week on Sept. 6-7 this year, with the Geneva portion taking place on **Thursday Sept. 6**, and the Hudson Valley installment on the second day, **Friday, Sept. 7**. Activities will commence in Geneva on the 6th, with registration, coffee, etc., in the lobby of Barton Lab at 8:30 am. The tour will proceed to the orchards to view plots and preliminary data from field trials involving new fungicides, bactericides, miticides, and insecticides on tree fruits and grapes. It is anticipated that the tour of field plots will be completed before noon.

This year, we are inviting all of our Geneva-based graduate students (not just fruit people) to join the tour, to give them an opportunity to

observe industry product efficacy in the field, showcasing the latest pest management materials and techniques, and to meet and network with the consultants and agrichemical industry representatives in attendance. Following the field presentations, lunch will be served to all attendees at Barton Lab. While the field tour will be fruit-oriented, representatives and consultants attend from a wide range of companies and businesses, relevant to many sectors of agriculture. They will each have an opportunity to give a brief overview at lunch about their business and what they look for in prospective employees. This will be an excellent networking opportunity for ALL graduate students.

On Sept. 7th, participants will register at the Hudson Valley Laboratory starting at 8:30, after which they will view and discuss results from field trials on apples and other fruit crops. No pre-registration is required for either event.

BIOCONTROLS USA EAST CONFERENCE & EXPO
Rochester Riverside Hotel
Rochester, NY - October 11-12, 2018

Industry experts will lead you through the latest biological control strategies and products that growers are using to succeed during workshops, tours, and educational sessions devoted to the challenges and opportunities specific to the Northeast region. Full agenda available at

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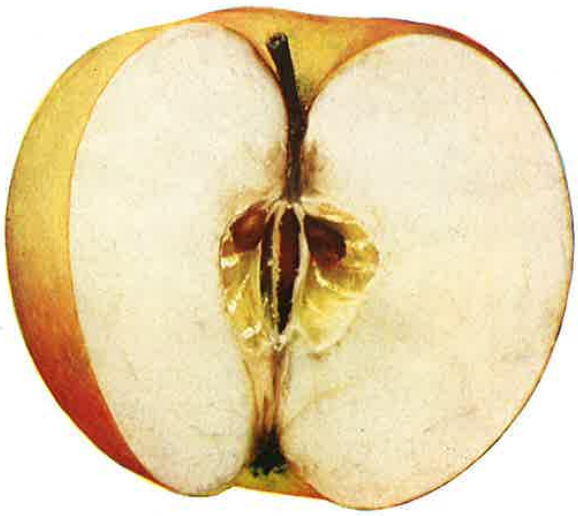
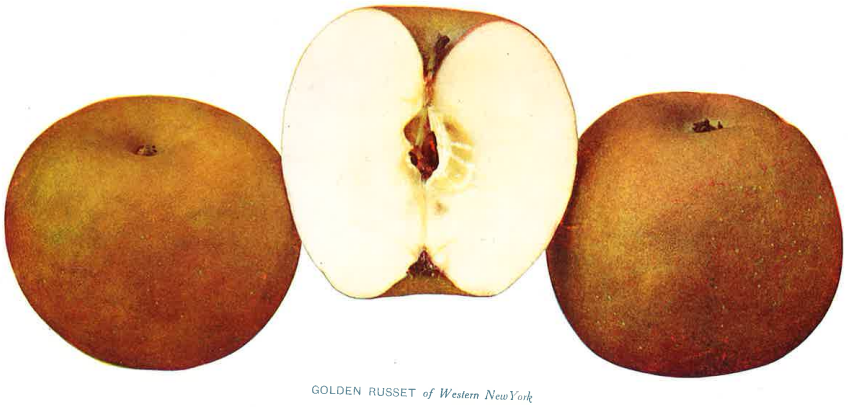


WINTER BANANA



GOLDEN RUSSET *of Western New York*

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	8/17	8/20	8/27
Redbanded leafroller	5.0	1.5	8.0
Spotted tentiform leafminer	44.5	23.5	51.5
Oriental fruit moth	64.5	52.0	119.5
Codling moth	45.5	16.5	57.5
Lesser peachtree borer	7.5	4.0	8.0
Obliquebanded Leafroller	0.5	1.0	0.5
Peachtree borer	1.0	0.0	2.0
Apple maggot	0.7	0.3	0.3

Highland, NY

	8/20	8/27	9/4
Redbanded leafroller	48.0	66.0	51.5
Spotted tentiform leafminer	54.5	20.0	52.0
Lesser appleworm	1.5	1.0	5.0
Oriental fruit moth	5.0	3.0	16.0
Codling moth	12.0	8.5	3.5
San Jose scale	134.0	67.0	232.0
Obliquebanded leafroller	0.5	0.0	1.5
Dogwood borer	1.0	3.5	1.0
Tufted apple budmoth	2.5	12.5	19.5
Sparganothis fruitworm	2.5	6.0	4.0
Apple maggot	8.3	4.0	3.0

UPCOMING PEST EVENTS

	43°F	50°F
Current DD* accumulations (Geneva 1/1–9/4):	3235.8	2307.5
(Geneva 1/1–9/4/2017):	2990.1	1988.1
(Geneva "Normal"):	3179.1	2193.2
(Geneva 1/1-9/10, predicted):	3387.8	2417.5
(Highland 1/1–9/4):	3549.9	2555.8

Coming Events:	Ranges (Normal ±StDev):	
Codling moth 2nd flight subsides	2846-3462	1923-2447
Obliquebanded leafroller 2nd flight subsides	3108-3468	2126-2448
Redbanded leafroller 3rd flight subsides	3124-3436	2142-2422
Spotted tentiform leafminer 3rd flight subsides	3244-3480	2258-2462
White apple LH 2nd gen adults peak population	3330-3552	2357-2553

*all DDs Baskerville-Emin, B.E.

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

The **Cornell Pest Management Guidelines for Commercial Tree Fruit Production** (aka 'The Recommends') is available from the Cornell Store, both in a printed book format as well as online; visit https://ipmguidelines.org/ for purchasing details.

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