

2016 Ranking of Tree Fruit IPM Research and Extension Priorities - Summary					
Respondent Groups:					
1: LOFT Fruit School, Lockport - Feb. 1, 2016 (36 Respondents)					
2: LOFT Fruit School, Newark - Feb. 2, 2016 (23 Respondents)					
3: ENY Fruit Schools, Lake George & Kingston - Feb. 15-16, 2016 (20 respondents)					
4: New England/NY/Canadian Fruit IPM Workshop, Burlington, VT - Oct. 19, 2016 (17 respondents)					
	Percent Ranking				
Pome Fruit Diseases	1	2	3	4	Average
Apple scab	24.3	23.8	23.4	27.6	24.8
Fire blight	32.3	31.3	28.9	21.9	28.6
Powdery mildew	6.4	12.0	13.3	11.0	10.7
Sooty Blotch/Flyspeck	5.2	4.1	7.1	5.3	5.4
Fruit Rots	12.0	4.1	6.5	7.0	7.4
Rust diseases	4.0	1.5	3.6	2.2	2.8
Replant disease	0.8	4.7	1.9	7.5	3.7
Anthracnose	1.6	0.0	0.3	0.0	0.5
Cankers	3.6	1.9	1.0	4.4	2.7
Root rots	3.2	4.5	2.6	1.3	2.9
Fabraea leaf spot	0.0	0.2	2.3	0.4	0.7
Phytophthora	1.6	2.4	2.9	2.2	2.3
Storage rots/pre-harvest sprays	5.2	9.2	6.2	7.0	6.9
<i>(Write-in): Tree stress (&gt;BSB)</i>		0.2			0.2
<i>(Write-in): Scald</i>				2.2	2.2
Direct (Fruit-attacking) Pome Fruit Insect Pests	1	2	3	4	Average
Internal leps (Codling moth, OFM, LAW)	23.8	22.8	24.0	10.6	20.3
Plum curculio	25.9	17.9	17.9	24.0	21.4
Apple maggot	19.2	17.4	12.0	14.9	15.9
Stink bugs	17.2	9.6	14.9	16.3	14.5
Obliquebanded leafroller	7.1	11.3	11.0	10.6	10.0
Spotted wing Drosophila	2.5	11.3	8.8	10.6	8.3
European apple sawfly	2.5	4.9	4.5	9.1	5.3
Tarnished plant bug	1.3	4.7	5.5	3.8	3.8
<i>(Write-in): Spotted lanternfly</i>	0.4				0.4
<i>(Write-in): Scales</i>			0.6		0.6
<i>(Write-in): Japanese beetle</i>			0.6		0.6
Pome Fruit Indirect Arth Pests/ Beneficial species	1	2	3	4	Average
European red mite/Two spotted spider mite	18.0	9.2	7.4	17.1	12.9
San Jose Scale	15.9	15.7	14.8	14.3	15.2
Predator mites	10.5	5.3	7.0	10.5	8.3
<i>continued</i>					<i>continued</i>

<b>Pome Fruit Indirect Arth Pests/ Beneficial species</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Borers/Ambrosia beetles	19.7	16.6	21.5	13.8	17.9
Woolly apple aphid	6.3	19.6	17.8	7.1	12.7
Potato/White apple leafhoppers	3.3	2.5	3.0	2.4	2.8
Leafminers	1.7	4.6	7.4	6.2	5.0
Pear psylla	4.2	7.8	2.7	12.4	6.8
Rosy apple aphid	2.9	11.1	8.4	5.2	6.9
Mealybugs	0.0	0.7	0.0	0.0	0.2
Predator conservation	15.9	6.7	10.1	11.0	10.9
Apple leafcurling midge	1.3	0.2			0.7
Rust mites	0.4				0.4
<b>Peach Diseases</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Brown rot	31.9	26.2	29.7	27.3	28.8
Bacterial spot	19.3	16.9	12.0	17.5	16.4
Peach leaf curl	9.2	13.9	15.6	11.9	12.7
Powdery mildew	4.2	9.7	7.8	4.2	6.5
X-disease	8.4	1.5	4.2	6.3	5.1
Perennial canker	8.4	13.5	13.5	13.3	12.2
Peach scab	3.4	2.2	2.1	4.9	3.1
Phytophthora rots	4.2	3.0	5.2	4.2	4.2
Plum pox	2.5	3.0	0.5	3.5	2.4
Winter kill	8.4	9.4	7.8	7.0	8.1
Rusty spot	0.0	0.7	1.6	0.0	0.6
<b>Peach Direct (fruit-attacking) Insect Pests</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Brown marmorated & other stink bugs	29.6	14.7	27.8	21.2	23.3
Plum curculio	16.0	18.3	12.4	20.5	16.8
Oriental fruit moth	20.0	19.4	19.6	15.2	18.5
Spotted wing Drosophila	11.2	12.3	13.4	7.6	11.1
Tarnished plant bug	8.0	6.0	11.3	8.3	8.4
Obliquebanded leafroller	2.4	10.7	4.1	5.3	5.6
Western flower thrips	2.4	2.8	2.1	6.1	3.3
Japanese beetle	10.4	15.5	9.3	13.6	12.2
(Write-in): Wasps		0.4			0.4
(Write-in): White peach scale				2.3	2.3
<b>Peach Indirect Arthropod Pests</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Japanese beetle	25.2	25.4	19.0	14.8	21.1
Peachtree borers	31.9	23.3	32.3	33.0	30.1
Mites	6.7	18.6	7.9	19.1	13.1
Scales	16.8	8.5	14.3	7.8	11.8
<i>continued</i>					<i>continued</i>

<b>Peach Indirect Arthropod Pests</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
American plum borer	9.2	11.9	15.9	13.0	12.5
Green peach aphid	10.1	12.3	10.6	12.2	11.3
<b>Cherry Arthropod Pests</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Spotted wing Drosophila	28.7	21.3	21.2	20.4	22.9
Plum curculio	13.0	16.7	10.6	11.1	12.9
Cherry fruit flies	24.3	15.5	17.2	16.7	18.4
Japanese beetle	13.0	12.0	8.6	11.1	11.2
Peachtree borers	7.8	7.0	11.6	16.7	10.8
Brown marmorated stink bug	2.6	11.6	15.7	7.4	9.3
Aphids	3.5	8.9	3.5	5.6	5.4
American plum borer	6.1	4.3	5.6	7.4	5.8
Scales	0.9	2.7	6.1	3.7	3.3
<b>Cherry Diseases/Disorders</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Brown rot	33.0	27.5	27.4	31.6	29.9
Bacterial canker	24.5	21.9	17.9	21.1	21.3
Leaf spot	5.3	9.7	10.4	5.3	7.7
X-disease	20.2	1.5	3.5	7.0	8.0
Fruit cracking	5.3	16.7	16.9	19.3	14.6
Black knot	5.3	7.8	10.4	10.5	8.5
Viruses	3.2	4.5	6.0	5.3	4.7
Phytophthora	3.2	4.5	3.0	0.0	2.7
Powdery mildew	0.0	5.9	4.5	0.0	2.6
<b>Postharvest Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Post-harvest decay management	33.0	15.9	21.6	18.7	22.3
GAPS & Food safety	24.5	15.9	26.3	15.9	20.6
Post-harvest drench alternatives	5.3	3.3	3.8	4.9	4.3
Bin sanitation	20.2	5.5	5.5	3.8	8.8
Scald	5.3	7.8	3.4	9.9	6.6
Bitter Pit	5.3	20.4	19.9	19.2	16.2
Packing line sanitation	3.2	3.3	2.1	7.1	3.9
1-MCP	3.2	6.8	11.0	7.1	7.0
CO2 Damage	0.0	6.8	1.3	1.1	2.3
Flesh browning	3.6	14.4	5.1	9.3	8.1
<i>(Write-in): Sanitation in storage facilities (new FSMA requirement)</i>	1.0				1.0
<i>(Write-in): Canadian small bin controlled storages</i>				2.7	2.7

<b>Vertebrate Pests</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Deer	30.7	28.4	31.8	26.0	29.2
Voles	27.1	19.7	18.2	27.0	23.0
Birds	17.4	19.7	18.6	17.2	18.2
Rabbits	4.1	6.3	8.0	4.2	5.7
Turkeys	6.0	0.7	1.5	1.4	2.4
Goundhogs	3.7	7.5	6.6	14.4	8.0
Canada geese	0.0	2.4	1.5	1.9	1.4
Beavers	0.5	2.7	0.4	0.9	1.1
Porcupines	0.5	0.0	0.0	1.4	0.5
Raccoons	0.5	4.6	1.5	0.0	1.6
Fishers	0.0	0.0	0.0	0.0	0.0
Crows	6.9	7.8	12.0	5.6	8.1
<i>(Write-in): Foxes</i>		0.2			0.2
<b>Pest Management Education Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Workshops for advisors/growers	18.5	12.9	21.2	15.7	17.1
Orchard demos	15.8	12.5	14.4	17.4	15.0
Production Guidelines publication	17.6	10.1	13.7	7.6	12.3
Web-based delivery methods	12.2	6.8	5.2	5.5	7.4
Pesticide applicator workshops	4.5	13.9	15.0	12.7	11.5
Pesticide safety programs	2.3	7.3	6.9	8.1	6.1
Smart phone apps	6.8	6.6	2.9	8.5	6.2
Consumer education	6.3	5.4	4.9	5.9	5.6
Biocontrol demos	2.7	4.2	4.9	5.1	4.2
Education for policy makers	5.0	8.9	6.5	6.4	6.7
Virtual workshops based plant growth simulations	0.0	5.4	3.3	4.2	3.2
e-version of Guidelines; web or app	7.7	5.9	1.0	3.0	4.4
<i>(Write-in): training for pesticide applicator exams</i>	0.9				0.9
<b>Ground Cover Management</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Alternatives to herbicides, mulching, cultivation	22.7	9.7	15.6	19.6	16.9
Perennial weed management	25.6	21.0	23.1	12.5	20.5
Use of new herbicides	6.7	17.0	17.5	16.1	14.3
Herbicide resistance	9.2	15.0	6.5	8.5	9.8
Timing of control methods	9.7	17.7	17.9	18.3	15.9
Winter injury, etc. from glyphosate	13.4	8.8	3.6	4.0	7.5
Weed biology & ID	5.0	2.4	3.2	8.9	4.9
Nutrient competition	5.0	3.1	5.8	6.7	5.2
Best use of old herbicides	0.4	4.0	5.2	5.4	3.7
<i>(Write-in): phytotoxicity of herbicides/soil health</i>	2.1				2.1
<i>(Write-in): Under-tree ground covers</i>		1.1			1.1
<i>(Write-in): Biological control</i>			1.6		1.6

<b>Application Technology Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Spray coverage vs. control	22.8	23.6	17.4	20.0	20.9
Calibration	25.0	12.0	16.8	9.5	15.8
Drift management	12.1	7.0	6.8	13.8	9.9
Adjuvants w/ thinners (instead of oil)	3.6	9.5	11.3	16.7	10.3
Phytotoxicity and fruit finish	12.5	15.0	12.9	9.5	12.5
Canopy spray issues	8.9	2.0	7.7	4.8	5.9
Fixed spraying systems	2.7	2.9	2.3	3.8	2.9
Single-sided sprays in high density plantings	1.8	8.6	3.9	9.5	5.9
Herbicide shields	5.4	3.4	2.6	1.0	3.1
Tower sprayer options	2.2	5.7	8.4	6.7	5.7
Application of growth regulators to canopy	1.8	9.1	10.0	4.8	6.4
<i>(Write-in): Tank mixes (synergistic or antagonistic effects)</i>	1.3				1.3
<i>(Write-in): Crop-adapted spraying</i>		1.1			1.1
<b>Regulatory Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Pesticide registration procedures/restrictions	17.1	13.9	14.9	11.9	14.5
Clarification of labels	8.8	5.6	4.4	10.4	7.3
Harmonization of labels	9.3	2.9	5.8	8.0	6.5
Invasive species	17.1	11.2	12.2	13.4	13.5
Production standards for imports/exports (MRLs)	0.9	2.9	1.0	0.5	1.3
Right-to-farm/drift issues	4.6	8.5	3.4	12.9	7.4
Smaller package sizes	6.0	1.2	2.7	2.0	3.0
Use of "Generally Regarded As Safe" products	4.6	4.4	2.7	1.0	3.2
Labor Regulations	4.6	16.1	18.3	10.9	12.5
Surface water regulations	1.9	5.1	3.1	8.5	4.6
Fast-track NYS label registrations	2.3	12.4	10.2	2.0	6.7
Updates on WPS	7.9	6.6	8.1	2.5	6.3
Pollinator protection	12.0	5.6	8.5	9.5	8.9
Spanish labels	2.8	2.7	3.1	4.0	3.1
<i>(Write-in): Container disposal</i>		1.0			1.0
<i>(Write-in): Cost containment</i>			1.7		1.7
<i>(Write-in): Food processing license fees (cider)</i>				2.5	2.5
<b>General IPM Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Pesticide resistance	15.6	21.5	17.6	18.9	18.4
Invasive/exotic species	18.7	11.7	12.1	12.6	13.8
Weather/information delivery systems	16.9	8.8	14.1	18.0	14.4
Cost reduction	7.1	13.9	10.2	11.3	10.6
Pollinator conservation	15.1	6.6	8.0	8.6	9.6
Organic production	6.7	3.7	4.2	5.9	5.1
<i>continued</i>					<i>continued</i>

<b>General IPM Issues</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Average</b>
Pheromone technology	5.3	8.0	4.5	2.7	5.1
OP/carbamate replacements	1.3	11.2	10.5	8.1	7.8
Abandoned orchard impact	0.9	2.9	2.6	4.1	2.6
IFP certification	0.0	0.0	2.9	2.3	1.3
Groundwater monitoring	0.0	1.0	1.3	0.9	0.8
Metrics of IPM adoption	5.8	0.2	0.3	2.3	2.1
Impacts of product losses on mgt progs	2.2	5.6	9.9	0.9	4.7
Drones for crop mgt	0.9	4.9	1.9	3.6	2.8
<i>(Write-in): Beneficial insects</i>	1.3				1.3
<i>(Write-in): Pest monitoring</i>	2.2				2.2