2017 Ranking of Tree Fruit IPM Research and Extension Priorities - Summary					
Respondent Groups:					
1: LOFP Fruit School, Lockport - Feb. 6, 2017 (42 Respondents)					
2: LOFP Fruit School, Newark - Feb. 7, 2017 (43 Respondents)					
3: New England/NY/Canadian Fruit IPM Workshop, Burlington, VT - Oct. 24, 2017 (27 respondents)					
	Group/Percent Ranking				
Pome Fruit Diseases	**1**	**2**	**3**	**Average**	
Apple scab	**18.0**	**20.1**	**26.2**	**21.4**	
Fire blight	**31.3**	**30.8**	**29.0**	**30.4**	
Powdery mildew	**9.9**	**11.8**	**3.3**	**8.4**	
Sooty Blotch/Flyspeck	**3.2**	**4.9**	**4.6**	**4.3**	
Fruit Rots	**6.8**	**5.4**	**11.1**	**7.8**	
Rust diseases	**2.5**	**1.4**	**3.3**	**2.4**	
Replant disease	**4.7**	**4.2**	**2.8**	**3.9**	
Anthracnose	**0.5**	**0.0**	**0.0**	**0.2**	
Cankers	**0.2**	**1.2**	**3.1**	**1.5**	
Root rots	**2.7**	**3.6**	**2.1**	**2.8**	
Fabraea leaf spot	**0.0**	**0.0**	**1.8**	**0.6**	
Phytophthora	**2.0**	**1.4**	**2.6**	**2.0**	
Storage rots/pre-harvest sprays	**7.6**	**6.3**	**1.8**	**5.2**	
Tree stress (>BSB)	**9.7**	**7.1**	**8.0**	**8.3**	
Scald	**0.2**	**1.0**	**0.3**	**0.5**	
(Write-in): Sudden Apple Decline syndrome	**0.7**	**0.8**		**0.8**	
Direct (Fruit-attacking) Pome Fruit Insect Pests	**1**	**2**	**3**	**Average**	
Internal leps (Codling moth, OFM, LAW)	**18.1**	**23.3**	**22.3**	**21.2**	
Plum curculio	**19.9**	**12.7**	**20.8**	**17.8**	
Apple maggot	**8.0**	**12.9**	**17.4**	**12.8**	
Stink bugs	**18.2**	**12.7**	**17.4**	**16.1**	
Obliquebanded leafroller	**6.9**	**9.3**	**4.9**	**7.0**	
Spotted wing Drosophila	**7.5**	**8.2**	**6.9**	**7.5**	
European apple sawfly	**2.6**	**5.9**	**1.8**	**3.4**	
Tarnished plant bug	**3.1**	**1.7**	**1.5**	**2.1**	
Spotted lanternfly	**1.3**	**0.9**	**0.3**	**0.8**	
Scales	**10.9**	**8.3**	**3.6**	**7.6**	
Japanese beetle	**3.5**	**3.6**	**2.8**	**3.3**	
(Write-in): Gypsy moth			**0.3**	**0.3**	
Pome Fruit Indirect Arth Pests/ Beneficial species	**1**	**2**	**3**	**Average**	
European red mite/Twospotted spider mite	**13.9**	**9.2**	**11.7**	**11.6**	
San Jose Scale	**18.3**	**15.7**	**13.7**	**15.9**	
Predator mites	**5.7**	**5.3**	**7.1**	**6.0**	
Borers/Ambrosia beetles	**13.2**	**12.9**	**22.4**	**16.2**	*continued*

Pome Fruit Indirect Arth Pests/ Beneficial spp. (cont)	1	2	3	Average	
Woolly apple aphid	16.5	18.7	9.6	14.9	
Potato/White apple leafhoppers	4.2	3.4	4.9	4.2	
Leafminers	0.9	4.6	2.2	2.6	
Pear psylla	10.8	3.8	6.6	7.1	
Rosy apple aphid	7.5	7.0	2.7	5.8	
Mealybugs	0.0	0.0	0.0	0.0	
Predator conservation	7.9	10.3	16.7	11.6	
Apple leafcurling midge	0.0	1.2	1.6	0.9	
Rust mites	1.1	0.6	0.8	0.8	
Peach Diseases	1	2	3	Average	
Brown rot	24.0	26.7	29.9	26.9	
Bacterial spot	14.7	10.7	22.6	16.0	
Peach leaf curl	14.7	11.9	11.5	12.7	
Powdery mildew	6.5	7.1	6.6	6.7	
X-disease	1.8	4.2	5.2	3.7	
Perennial canker	15.1	10.4	10.1	11.8	
Peach scab	3.9	5.3	2.8	4.0	
Phytophthora rots	3.6	6.5	3.8	4.6	
Plum pox	5.4	4.2	0.0	3.2	
Winter kill	7.5	7.7	6.9	7.4	
Rusty spot	2.9	3.9	0.7	2.5	
(Write-in): PGRs to promote dormancy		1.5		1.5	
Peach Direct (fruit-attacking) Insect Pests	1	2	3	Average	
Brown marmorated & other stink bugs	18.8	22.9	28.4	23.4	
Plum curculio	22.1	13.6	15.1	16.9	
Oriental fruit moth	20.2	12.1	19.4	17.2	
Spotted wing Drosophila	9.9	13.0	14.0	12.3	
Tarnished plant bug	8.1	7.7	7.6	7.8	
Obliquebanded leafroller	7.4	6.8	0.4	4.8	
Western flower thrips	0.4	2.8	2.5	1.9	
Japanese beetle	9.9	7.1	7.2	8.1	
Wasps	1.5	2.2	0.7	1.5	
White "peach" (Prunicola) scale	1.8	11.8	4.7	6.1	
Peach Indirect Arthropod Pests	1	2	3	Average	
Japanese beetle	21.5	14.1	19.6	18.4	
Peachtree borers	27.3	25.5	33.3	28.7	
Mites	11.2	16.6	11.8	13.2	
Scales	15.7	17.8	17.6	17.0	
American plum borer	13.6	16.3	6.7	12.2	
Green peach aphid	10.7	9.8	11.0	10.5	

Cherry Arthropod Pests	1	2	3	Average	
Spotted wing Drosophila	13.9	19.3	34.5	22.6	
Plum curculio	22.4	13.1	14.9	16.8	
Cherry fruit flies	17.6	16.1	16.1	16.6	
Japanese beetle	12.2	7.7	12.2	10.7	
Peachtree borers	10.2	11.6	10.2	10.7	
Brown marmorated stink bug	10.8	11.0	5.9	9.2	
Aphids	4.4	3.0	2.7	3.4	
American plum borer	4.4*	6.3	1.2	3.7	
Scales	4.1	11.9	2.4	6.1	
Comment Re: American plum borer - especially as it relates to canker					
Cherry Diseases/Disorders	**1**	**2**	**3**	**Average**	
Brown rot	27.3	29.6	28.8	28.6	
Bacterial canker	19.3	15.0	25.5	19.9	
Leaf spot	8.9	12.1	10.9	10.6	
X-disease	0.6	1.0	5.2	2.3	
Fruit cracking	19.3	16.9	16.9	17.7	
Black knot	8.0*	5.1	8.6	6.9	
Viruses	3.9	7.0	2.2	4.4	
Phytophthora	5.6	6.7	1.1	4.5	
Powdery mildew	7.1	6.7	0.7	4.9	
Comment Re: Black knot - more important in plum/prune					
Postharvest Issues	**1**	**2**	**3**	**Average**	
Post-harvest decay management	15.3	14.1	17.9	15.7	
GAPS, Food safety & FSMA	15.5	16.8	20.2	17.5	
Post-harvest drench alternatives	4.0	2.1	12.0	6.0	
Bin sanitation	5.8	8.5	6.2	6.8	
Scald	3.4	4.3	4.1	3.9	
Bitter Pit	21.8	24.5	18.2	21.5	
Packing line sanitation	5.4	2.1	0.9	2.8	
1-MCP	2.2	7.0	5.6	4.9	
CO2 Damage	7.5	1.9	0.9	3.4	
Flesh browning	12.7	10.7	2.6	8.7	
Sanitation in storage facilities (new FSMA reqmt)	6.5	5.3	8.5	6.8	
Canadian small bin controlled storages	0.0	2.6	0.0	0.9	
(Write-in): Ultra-low oxygen			1.5	1.5	
(Write-in): soft scald			1.5	1.5	

Vertebrate Pests	1	2	3	Average	
Deer	31.7	31.4	25.1	29.4	
Voles/Mice	20.5	14.8	23.8	19.7	
Birds	20.3	18.9	23.5	20.9	
Rabbits	3.4	2.5	5.7	3.9	
Turkeys	3.4	3.8	7.0	4.7	
Groundhogs	7.2	7.6	5.0	6.6	
Canada geese	1.4	0.8	0.5	0.9	
Beavers	2.2	3.4	0.0	1.9	
Porcupines	0.0	0.0	2.3	0.8	
Raccoons	4.8	3.6	0.0	2.8	
Fishers	0.6	0.0	0.0	0.2	
Crows	4.4	12.7	7.0	8.0	
Foxes	0.2	0.4	0.0	0.2	
Pest Management Education Issues	**1**	**2**	**3**	**Average**	
Workshops for advisors/growers	17.1	16.7	17.6	17.1	
Orchard demos	16.9	16.3	12.1	15.1	
Production Guidelines publication	11.4	10.2	14.1	11.9	
Web-based delivery methods	5.5	6.7	13.4	8.5	
Pesticide applicator workshops	11.7	11.0	6.4	9.7	
Pesticide safety programs	6.8	3.7	4.7	5.0	
Smart phone apps	7.3	6.7	5.4	6.5	
Consumer education	7.3	9.0	5.0	7.1	
Biocontrol demos	2.0	2.4	7.7	4.0	
Education for policy makers	7.1	7.1	2.5	5.6	
Virtual workshops based plant growth simulations	0.2	3.3	0.0	1.1	
e-version of Guidelines; web or app	3.4	3.5	9.4	5.4	
training for pstc applicator exams	3.0	1.2	1.7	2.0	
(write-in)Pesticide training for H2A/Hispanic staff	0.4	1.0		0.7	
(write-in)On-farm scout training & certification		1.0		1.0	
Ground Cover Management	**1**	**2**	**3**	**Average**	
Alternatives to herbicides, mulching, cultivation	10.6	6.8	21.5	12.9	
Perennial weed management	16.8	18.2	17.8	17.6	
Use of new herbicides	15.2	12.5	9.9	12.5	
Herbicide resistance	7.3	12.9	5.2	8.5	
Timing of control methods	11.3	12.1	10.4	11.3	
Winter injury, etc. from glyphosate	8.2	6.3	4.2	6.2	
Weed biology & ID	2.7	6.3	2.5	3.8	
Nutrient competition	4.1	5.0	2.2	3.8	
Best use of old herbicides	3.9	5.2	2.5	3.9	
phytotoxicity and soil health of herbicides	9.3*	8.2	5.7	6.9	*continued*

Ground Cover Management (cont)	1	2	3	Average	
Under-tree ground covers	5.6	3.2	9.4	6.1	
Biological weed control	3.8	3.4	3.2	3.5	
(write-in): Organic weed control	0.2			0.2	
(write-in): Weed control vs. yield	0.9			0.9	
soill health/carbon sequestration			5.7	5.7	
Object to assertions that effective herbicides are detrimental to tree or encourage tree decline; it's all about timing.					
Takes weeks to apply a hrbc; need faster applic technology to get weeds when they are small. We raise rates					
because weeds get big; add adjuvants to make them perform - vicious cycle					
Application Technology Issues	**1**	**2**	**3**	**Average**	
Spray coverage vs. control	18.7	21.8	18.5	19.7	
Calibration	10.9	9.7	16.4	12.4	
Drift management	10.9	9.9	16.7	12.5	
Adjuvants w/ thinners (instead of oil)	4.8	6.1	5.7	5.6	
Phytotoxicity and fruit finish	13.2	11.2	10.2	11.5	
Canopy spray issues	5.3	6.0	3.9	5.1	
Fixed spraying systems	4.6	4.7	0.5	3.3	
Single-sided sprays in high density plantings	8.5	4.3	3.9	5.6	
Herbicide shields	3.4	0.7	3.7	2.6	
Tower sprayer options	5.8	4.8	1.8	4.2	
Application of growth regulators to canopy	6.5	7.8	2.9	5.7	
Tank mixes (synergistic or antagonistic effects)	5.1	9.5	10.2	8.3	
Crop-adapted spraying	1.4	3.5	5.5	3.5	
(Write-in): Better herbicide application techniques	0.9			0.9	
Regulatory Issues	**1**	**2**	**3**	**Average**	
Pesticide registration procedures/restrictions	12.3	12.5	13.4	12.7	
Clarification of labels	5.1	4.1	9.4	6.2	
Harmonization of labels	6.6	2.5	12.7	7.2	
Invasive species	11.3	8.2	9.6	9.7	
Production standards for imports/exports (MRLs)	7.4	4.5	4.1	5.3	
Right-to-farm/drift issues	6.6	7.8	6.6	7.0	
Smaller package sizes	1.2	1.2	8.4	3.6	
Use of "Generally Regarded As Safe" products	2.3	2.5	3.5	2.8	
Labor Regulations	15.8	17.5	8.9	14.0	
Surface water regulations	3.7	3.5	2.5	3.2	
Fast-track NYS label registrations	7.2	8.6	1.5	5.8	
Updates on WPS	7.6	10.1	1.5	6.4	
Pollinator protection	3.3	6.4	10.4	6.7	
Spanish labels	1.9	2.7	3.8	2.8	
Containner disposal	4.1	3.9	1.8	3.3	
Cost containment	2.7	2.5	0.0	1.7	*continued*

Regulatory Issues (cont)	1	2	3	Average	
Food processing license fees	0.0	1.6	0.8	0.8	
(Write-in): Soap bars for deer control	1.0			1.0	
(Write-in): FSMA			1.3	1.3	
General IPM Issues	**1**	**2**	**3**	**Average**	
Pesticide resistance	14.4	12.4	10.1	12.3	
Invasive/exotic species	15.6	10.5	10.6	12.3	
Weather/information delivery systems	11.8	4.3	14.8	10.3	
Cost reduction	8.2	12.6	3.7	8.2	
Pollinator conservation	5.0	12.2	9.6	8.9	
Organic production	2.8	1.4	6.9	3.7	
Pheromone technology	5.8	3.9	3.2	4.3	
OP/carbamate replacements	8.8	5.6	2.0	5.5	
Abandoned orchard impact	2.0	1.9	1.7	1.9	
IFP certification	0.0	0.8	0.0	0.3	
Groundwater monitoring	1.2	2.1	1.0	1.4	
Metrics of IPM adoption	0.8	0.0	5.9	2.2	
Impacts of product losses on mgt progs	3.8	7.4	2.0	4.4	
Drones for crop mgt	3.4	4.5	4.4	4.1	
Beneficial insects	7.4	12.0	5.9	8.4	
Pest monitoring & thresholds	8.8	7.4	11.6	9.3	
Climate change adaptation			6.4	6.4	
(Write-in): Multiple pest/disease economics & thresholds		1.0		1.0	