

Northeastern IPM Center - Tree Fruit IPM Working Group						
Ranking of Research and Extension Priorities: 6-Year Comparison						
New England, NY, Canadian Fruit IPM Workshop, Burlington, VT - Oct. 23-24, 2018 (20 respondents)						
	Percent Weighted Rank					
	2018	2017	2016	2015	2014	2013
Pome Fruit Diseases						
Apple scab	26.4	26.2	24.3	26.8	29.5	29.0
Fire blight	29.0	29.0	32.3	29.0	30.8	25.1
Powdery mildew	3.6	3.3	6.4	9.6	12.9	12.3
Sooty Blotch/Flyspeck	6.9	4.6	5.2	6.8	8.3	10.7
Fruit Rots	18.1	11.1	12.0	14.6	11.7	10.7
Rust diseases	1.4	3.3	4.0	2.6	1.8	4.6
Replant disease	0.4	2.8	0.8	2.6	1.2	4.4
Anthracnose	0.0	0.0	1.6	0.0	0.0	1.6
Cankers	1.4	3.1	3.6	4.4	3.4	0.9
Root rots	0.0	2.1	3.2	2.2	0.6	0.7
Fabraea leaf spot	0.7	1.8	0.0	1.5	0.9	-
Phytophthora	0.0	2.6	1.6	-	-	-
Storage rots/pre-harvest sprays	2.9	1.8	5.2	-	-	-
Tree stress (>black stem borer/SAD)	3.6	8.0	-	-	-	-
Scald	0.0	0.3	-	-	-	-
Sudden Apple Decline syndrome	5.4	-	-	-	-	-
Direct (Fruit-attacking) Pome Fruit Insect Pests						
Internal leps (Codling moth, OFM, Lesser appleworm)	24.1	22.3	23.8	24.2	24.7	24.0
Plum curculio	19.4	20.8	25.9	20.8	22.4	19.2
Apple maggot	12.4	17.4	19.2	16.9	21.8	18.0
Stink bugs	14.0	17.4	17.2	15.9	18.4	15.1
Obliquebanded leafroller	6.7	4.9	7.1	10.0	6.0	9.4
Spotted wing Drosophila	4.7	6.9	2.5	2.9	2.9	8.4
European apple sawfly	1.3	1.8	2.5	3.7	3.2	4.1
Tarnished plant bug (2015: Plant bugs)	3.3	1.5	1.3	5.7	2.3	1.7
Spotted lanternfly	4.7	0.3	0.4	-	-	-
Scales	7.4	3.6	-	-	-	-
Japanese beetle	2.0	2.8	-	-	-	-
Gypsy moth	0.0	0.3	-	-	-	-
Pome Fruit Indirect Arthropod Pests/ Beneficial species						
European red mite/Two spotted spider mite	19.5	11.7	18.0	17.8	24.9	24.4
San Jose Scale	16.8	13.7	15.9	23.3	23.5	17.2
Predator mites	6.4	7.1	10.5	10.1	12.5	13.2
Borers/Ambrosia beetles	21.5	22.4	19.7	18.0	18.0	12.7
Woolly apple aphid	7.4	9.6	6.3	10.8	8.7	8.7
Potato/White apple leafhoppers	4.7	4.9	3.3	5.1	3.5	8.5
Leafminers	0.0	2.2	1.7	3.8	1.2	5.2
Pear psylla	7.4	6.6	4.2	7.6	7.8	5.0
Rosy apple aphid	1.3	2.7	2.9	3.2	3.5	4.7
Mealybugs	0.0	0.0	0.0	0.4	0.0	0.2
Predator conservation	13.1	16.7	15.9	-	-	-
Apple leafcurling midge	1.3	1.6	1.3	-	-	-
Rust mites	0.0	0.8	0.4	-	-	-
(write in:) Green pug	0.3					
Cherry Arthropod Pests						
Spotted wing Drosophila	32.7	34.5	28.7	19.3	26.8	24.3
Plum curculio	19.2	14.9	13.0	16.0	23.2	20.7
Cherry fruit flies	21.0	16.1	24.3	15.1	18.6	20.7
Japanese beetle	7.9	12.2	13.0	12.3	15.9	13.6
Peachtree borers	9.3	10.2	7.8	6.6	9.1	9.3
Brown marmorated stink bug	3.7	5.9	2.6	8.5	3.6	5.7

Cherry Arthropod Pests (cont.)	2018	2017	2016	2015	2014	2013
Aphids	4.2	2.7	3.5	9.9	0.5	5.0
American plum borer	0.9	1.2	6.1	4.2	0.0	0.7
Scales	0.9	2.4	0.9	8.0	4.1	0.0
Cherry Diseases/Disorders	2018	2017	2016	2015	2014	2013
Brown rot	34.1	28.8	33.0	31.5	32.8	32.9
Bacterial canker	21.6	25.5	24.5	24.7	27.3	20.6
Leaf spot	13.0	10.9	5.3	4.9	7.6	11.2
X-disease	2.7	5.2	20.2	5.6	4.0	2.9
Fruit cracking	18.9	16.9	5.3	21.0	16.2	18.8
Black knot	5.4	8.6	5.3	3.7	7.6	4.7
Viruses	0.5	2.2	3.2	4.9	4.0	0.6
Phytophthora	2.2	1.1	3.2	1.9	1.5	1.8
Powdery mildew	1.6	0.7	0.0	1.9	2.0	6.5
Peach Direct (fruit-attacking) Insect Pests	2018	2017	2016	2015	2014	2013
Brown marmorated & other stink bugs	26.0	28.4	29.6	25.9	33.6	25.9
Plum curculio	18.9	15.1	16.0	16.3	19.9	22.4
Oriental fruit moth	22.0	19.4	20.0	20.1	24.1	20.5
Spotted wing Drosophila	13.0	14.0	11.2	13.7	12.4	17.5
Tarnished plant bug	8.7	7.6	8.0	13.1	11.6	9.9
Obliquebanded leafroller	2.8	0.4	2.4	2.9	2.5	3.8
Western flower thrips	0.0	2.5	2.4	1.9	0.0	0.0
Japanese beetle	3.5	7.2	10.4	6.1	-	-
Wasps	3.9	0.7	-	-	-	-
White "peach" (Prunicola) scale	1.2	4.7	-	-	-	-
Peach Indirect Arthropod Pests	2018	2017	2016	2015	2014	2013
Japanese beetle	18.2	19.6	25.2	20.1	24.9	24.4
Peachtree borers	30.5	33.3	31.9	31.1	33.2	33.8
Mites	14.8	11.8	6.7	12.5	12.4	13.3
Scales	22.5	17.6	16.8	17.4	14.5	11.6
American plum borer	2.1	6.7	9.2	5.3	2.5	1.8
Green peach aphid	11.9	11.0	10.1	13.6	14.1	15.1
Peach Diseases	2018	2017	2016	2015	2014	2013
Brown rot	31.1	29.9	31.9	32.7	38.3	30.7
Bacterial spot	20.0	22.6	19.3	25.1	30.4	24.9
Peach leaf curl	11.1	11.5	9.2	11.2	14.5	11.1
Powdery mildew	3.4	6.6	4.2	4.8	8.9	10.0
X-disease	5.1	5.2	8.4	10.8	7.5	8.4
Perennial canker	11.5	10.1	8.4	8.8	7.5	5.7
Peach scab	0.4	2.8	3.4	3.6	0.0	3.8
Phytophthora rots	4.7	3.8	4.2	3.2	3.3	3.1
Plum pox	0.0	0.0	2.5	1.6	6.1	2.3
Winter kill	9.8	6.9	8.4	-	-	-
Rusty spot	1.7	0.7	0.0	-	-	-
PGRs to promote dormancy	1.3					
Vertebrate Pests	2018	2017	2016	2015	2014	2013
Deer	31.1	25.1	30.7	28.9	35.8	28.8
Voles	22.6	23.8	27.1	27.3	29.2	25.5
Birds	21.5	23.5	17.4	17.9	23.3	23.6
Rabbits	3.7	5.7	4.1	4.9	7.5	7.1
Turkeys	2.6	7.0	6.0	6.1	6.0	5.8

Vertebrate Pests (cont.)	2018	2017	2016	2015	2014	2013
Groundhogs	3.7	5.0	3.7	8.6	3.5	5.5
Canada geese	1.1	0.5	0.0	3.3	0.9	3.6
Beavers	0.7	0.0	0.5	0.2	1.3	0.3
Porcupines	2.2	2.3	0.5	2.3	-	-
Raccoons	0.0	0.0	0.5	0.5	-	-
Fishers	0.0	0.0	0.0	-	-	-
Crows	3.7	7.0	6.9	-	-	-
Foxes	0.0	0.0	-	-	-	-
(write in:) Squirrels	3.3	-	-	-	-	-
(write in:) Rodents	3.7	-	-	-	-	-
Postharvest Issues	2018	2017	2016	2015	2014	2013
Post-harvest decay management	24.5	17.9	24.6	18.5	28.1	29.2
GAPS & Food safety (2015: & FSMA)	15.8	20.2	16.9	19.3	22.2	17.7
Post-harvest drench alternatives	12.9	12.0	8.7	11.2	15.0	16.4
Bin sanitation	3.7	6.2	8.2	9.8	7.2	9.1
Scald	2.9	4.1	9.2	5.3	5.9	8.6
Bitter Pit	23.7	18.2	16.4	22.4	15.7	6.2
Packing line sanitation	1.7	0.9	4.1	4.2	0.0	5.6
1-MCP	1.2	5.6	5.6	4.8	5.6	5.1
CO2 Damage	0.8	0.9	1.5	4.5	2.3	2.1
Flesh browning	4.6	2.6	3.6	-	-	-
Sanitation in storage facilities (new FSMA reqmt)	2.9	8.5	1.0	-	-	-
Canadian small bin controlled storages	0.0	0.0	-	-	-	-
ultra-low oxygen	0.4	1.5	-	-	-	-
soft scald	3.3	1.5	-	-	-	-
(write in:) Soggy breakdown	1.7	-	-	-	-	-
Ground Cover Management	2018	2017	2016	2015	2014	2013
Alternatives to herbicides, mulching, cultivation	24.6	21.5	22.7	18.8	13.6	15.6
Perennial weed management	24.6	17.8	25.6	28.1	28.6	22.7
Use of new herbicides	8.7	9.9	6.7	12.6	17.3	16.4
Herbicide resistance	6.8	5.2	9.2	7.2	5.5	7.4
Timing of control methods	9.5	10.4	9.7	12.6	17.6	16.4
Winter injury, etc. from glyphosate	3.8	4.2	13.4	6.5	7.8	7.1
Weed biology & ID	3.4	2.5	5.0	9.1	5.5	7.4
Nutrient competition	1.5	2.2	5.0	3.5	1.4	6.0
Best use of old herbicides	3.0	2.5	0.4	1.6	2.0	1.1
phytotoxicity and soil health of herbicides	4.2	5.7	2.1	-	-	-
Under-tree ground covers	3.4	9.4	-	-	-	-
Biological weed control	1.1	3.2	-	-	-	-
Soil health/carbon sequestration	-	5.7	-	-	-	-
Organic weed control	0.8	-	-	-	-	-
Weed control vs. yield	4.5	-	-	-	-	-
Application Technology Issues	2018	2017	2016	2015	2014	2013
Spray coverage vs. control	29.7	18.5	22.8	26.9	30.0	25.1
Calibration	14.8	16.4	25.0	24.1	23.9	21.1
Drift management	16.3	16.7	12.1	15.9	14.4	15.9
Adjuvants w/ thinners (instead of oil)	4.9	5.7	3.6	8.9	8.1	11.0
Phytotoxicity and fruit finish	5.7	10.2	12.5	12.9	13.9	8.7
Canopy spray issues	2.3	3.9	8.9	6.1	3.9	7.0
Fixed spraying systems	4.2	0.5	2.7	1.2	2.8	6.8
Single-sided sprays in high density plantings	0.4	3.9	1.8	3.0	2.5	2.6
Herbicide shields	0.8	3.7	5.4	1.2	0.6	1.9
Tower sprayer options	4.9	1.8	2.2	-	-	-
Applic of growth regulators to canopy	1.1	2.9	1.8	-	-	-
Tank mixes (synergistic or antagonistic effects)	8.0	10.2	1.3	-	-	-
Crop-adapted spraying	2.3	5.5	-	-	-	-
Better herbicide application techniques	4.2	-	-	-	-	-
(write in:) 2-D Canopy mgt for appl. optimization	0.4	-	-	-	-	-

Pest Management Education Issues	2018	2017	2016	2015	2014	2013
Workshops for advisors/growers	20.5	17.6	18.5	20.3	27.8	22.4
Orchard demos	11.7	12.1	15.8	9.3	14.2	14.8
Production Guidelines publication	14.4	14.1	17.6	15.7	20.6	13.4
Web-based delivery methods	12.8	13.4	12.2	14.9	17.4	9.5
Pesticide applicator workshops	6.7	6.4	4.5	6.6	6.1	9.2
Pesticide safety programs	1.7	4.7	2.3	3.8	2.0	9.0
Smart phone apps	3.7	5.4	6.8	10.9	5.8	7.5
Consumer education	5.0	5.0	6.3	9.1	4.6	5.6
Biocontrol demos	3.7	7.7	2.7	4.6	0.6	5.1
Education for policy makers	5.0	2.5	5.0	4.2	0.9	3.4
Virtual IPM workshops based on plant growth simulations	0.0	0.0	0.0	0.6	-	-
e-version of Guidelines; web or app	9.4	9.4	7.7	-	-	-
training for pstc applicator exams	1.3	1.7	0.9	-	-	-
Pesticide training for H2A/Hispanic staff	1.0	-	-	-	-	-
On-farm scout training & certification	3.0					
General IPM Issues	2018	2017	2016	2015	2014	2013
Pesticide resistance	14.3	10.1	15.6	17.4	22.0	22.6
Invasive/exotic species	20.0	10.6	18.7	19.6	24.6	15.6
Weather/information delivery systems	15.3	14.8	16.9	19.0	20.6	15.4
Cost reduction	4.0	3.7	7.1	6.8	7.7	10.3
Pollinator conservation	5.0	9.6	15.1	8.2	10.3	9.8
Organic production	2.7	6.9	6.7	3.8	4.6	8.9
Pheromone technology	3.0	3.2	5.3	10.4	4.0	6.8
OP/carbamate replacements	3.0	2.0	1.3	5.4	2.6	4.2
Abandoned orchard impact	1.3	1.7	0.9	1.6	0.9	3.3
IFP certification	0.0	0.0	0.0	1.0	0.6	2.8
Groundwater monitoring	0.0	1.0	0.0	0.8	0.0	0.5
Metrics of IPM adoption	3.7	5.9	5.8	5.8	4.6	-
Impacts of potential product losses on spray progs	0.7	2.0	2.2	-	-	-
Drones for crop mgt	0.7	4.4	0.9	-	-	-
Beneficial insects	1.7	5.9	1.3	-	-	-
Pest monitoring & thresholds	9.3	11.6	2.2	-	-	-
Climate change adaptation	12.3	6.4	-	-	-	-
Multiple pest/disease economics & thresholds	3.0	-	-	-	-	-
Regulatory Issues	2018	2017	2016	2015	2014	2013
Pesticide registration procedures/restrictions	22.1	13.4	17.1	14.6	25.2	23.2
Clarification of labels	13.1	9.4	8.8	13.8	18.2	15.8
Harmonization of labels	9.7	12.7	9.3	8.3	15.7	14.8
Invasive species	13.9	9.6	17.1	14.2	17.6	12.8
Production standards for imports/exports (MRLs)	5.6	4.1	0.9	2.2	9.6	10.7
Right-to-farm/drift issues	6.7	6.6	4.6	5.9	8.0	7.9
Smaller package sizes	1.5	8.4	6.0	5.5	4.8	3.8
Use of "Generally Regarded As Safe" products	0.4	3.5	4.6	2.8	1.0	3.6
Labor Regulations	4.9	8.9	4.6	9.5	1.9	2.5
Surface water regulations	1.5	2.5	1.9	13.4	0.6	2.2
Fast-track NYS label registrations	1.9	1.5	2.3	0.4	0.3	1.6
Updates on WPS	0.4	1.5	7.9	2.8	0.3	1.1
Pollinator protection	7.9	10.4	12.0	6.7	-	-
Spanish labels	1.9	3.8	2.8	-	-	-
Container disposal	1.1	1.8	-	-	-	-
Cost containment	2.2	0.0	-	-	-	-
Food processing license fees (cider)	1.5	0.8	-	-	-	-
Soap bars for deer control	1.1	-	-	-	-	-
FSMA	2.6	1.3	-	-	-	-