

Northeastern IPM Center - Tree Fruit IPM Working Group								
Ranking of Research and Extension Priorities: 8-Year Comparison								
New England, NY, Canadian Fruit IPM Workshop (virtual) - Oct. 19, 2020 (25 respondents)								
Percent Weighted Rank								
Pome Fruit Diseases	2020	2019	2018	2017	2016	2015	2014	2013
Apple scab	22.9	23.7	26.4	26.2	24.3	26.8	29.5	29.0
Fire blight	28.0	30.1	29.0	29.0	32.3	29.0	30.8	25.1
Powdery mildew	5.7	1.5	3.6	3.3	6.4	9.6	12.9	12.3
Sooty Blotch/Flyspeck	4.5	4.1	6.9	4.6	5.2	6.8	8.3	10.7
Fruit Rots	10.2	9.9	18.1	11.1	12.0	14.6	11.7	10.7
Rust diseases	0.0	1.8	1.4	3.3	4.0	2.6	1.8	4.6
Replant disease	3.1	1.8	0.4	2.8	0.8	2.6	1.2	4.4
Anthracnose	0.0	0.3	0.0	0.0	1.6	0.0	0.0	1.6
Cankers	3.1	2.3	1.4	3.1	3.6	4.4	3.4	0.9
Root rots	0.3	0.0	0.0	2.1	3.2	2.2	0.6	0.7
Fabraea leaf spot	0.0	0.9	0.7	1.8	0.0	1.5	0.9	-
Phytophthora	0.8	0.3	0.0	2.6	1.6	-	-	-
Storage rots/pre-harvest sprays	1.4	2.6	2.9	1.8	5.2	-	-	-
Tree stress (>black stem borer/SAD)	5.4	5.8	3.6	8.0	-	-	-	-
Scald	0.0	0.6	0.0	0.3	-	-	-	-
Sudden Apple Decline syndrome	4.2	7.0	5.4	-	-	-	-	-
Viruses	2.3	1.2	-	-	-	-	-	-
Lenticel breakdown	0.0	0.0	-	-	-	-	-	-
Scarf skin	0.0	0.0	-	-	-	-	-	-
Marssonina leaf blotch	7.9	4.7	-	-	-	-	-	-
Glomerella	0.0	1.5	-	-	-	-	-	-
Direct (Fruit-attacking) Pome Fruit Insect Pests	2020	2019	2018	2017	2016	2015	2014	2013
Internal leps (Codling moth, OFM, Lesser appleworm)	22.4	24.1	24.1	22.3	23.8	24.2	24.7	24.0
Plum curculio	19.3	21.4	19.4	20.8	25.9	20.8	22.4	19.2
Apple maggot	14.1	16.1	12.4	17.4	19.2	16.9	21.8	18.0
Stink bugs	12.9	12.3	14.0	17.4	17.2	15.9	18.4	15.1
Obliquebanded leafroller	5.2	7.0	6.7	4.9	7.1	10.0	6.0	9.4
Spotted wing Drosophila	4.0	3.5	4.7	6.9	2.5	2.9	2.9	8.4
European apple sawfly	0.9	0.5	1.3	1.8	2.5	3.7	3.2	4.1
Tarnished plant bug (2015: Plant bugs)	6.3	1.1	3.3	1.5	1.3	5.7	2.3	1.7
Spotted lanternfly (moved to "Indirect Pests", below)	-	-	4.7	0.3	0.4	-	-	-
Scales	6.9	7.0	7.4	3.6	-	-	-	-
Japanese beetle	1.7	2.4	2.0	2.8	-	-	-	-
Gypsy moth	0.0	0.0	0.0	0.3	-	-	-	-
Invasive species	6.3	4.6	-	-	-	-	-	-
Pome Fruit Indirect Arthropod Pests/ Beneficial species	2020	2019	2018	2017	2016	2015	2014	2013
European red mite/Twospotted spider mite	13.6	12.9	19.5	11.7	18.0	17.8	24.9	24.4
San Jose Scale	19.5	14.3	16.8	13.7	15.9	23.3	23.5	17.2
Predator mites	6.2	7.0	6.4	7.1	10.5	10.1	12.5	13.2
Borers: Dogwood, Black stem borer, others	17.7	28.0	21.5	22.4	19.7	18.0	18.0	12.7
Woolly apple aphid	8.6	12.9	7.4	9.6	6.3	10.8	8.7	8.7
Potato/White apple leafhoppers	5.3	3.6	4.7	4.9	3.3	5.1	3.5	8.5
Leafminers	0.0	1.1	0.0	2.2	1.7	3.8	1.2	5.2
Pear psylla	11.2	5.3	7.4	6.6	4.2	7.6	7.8	5.0
Rosy apple aphid	2.9	2.0	1.3	2.7	2.9	3.2	3.5	4.7
Mealybugs	0.0	0.6	0.0	0.0	0.0	0.4	0.0	0.2
Predator conservation	4.7	5.9	13.1	16.7	15.9	-	-	-
Apple leafcurling midge	4.1	1.1	1.3	1.6	1.3	-	-	-
Rust mites	0.0	0.0	0.0	0.8	0.4	-	-	-
Green pug	0.0	0.3	0.3	-	-	-	-	-
Parasitic wasps	1.8	1.7	-	-	-	-	-	-
Oystershell scale	0.0	0.3	-	-	-	-	-	-
Spotted lanternfly	4.1	3.1	-	-	-	-	-	-
(write-in): Japanese Beetle as indirect pest	0.3	-	-	-	-	-	-	-
Cherry Arthropod Pests	2020	2019	2018	2017	2016	2015	2014	2013
Spotted wing Drosophila	36.6	30.5	32.7	34.5	28.7	19.3	26.8	24.3
Plum curculio	18.8	6.9	19.2	14.9	13.0	16.0	23.2	20.7
Cherry fruit flies	11.7	28.0	21.0	16.1	24.3	15.1	18.6	20.7
Japanese beetle	7.0	5.9	7.9	12.2	13.0	12.3	15.9	13.6
Peachtree borers	4.2	7.8	9.3	10.2	7.8	6.6	9.1	9.3
Brown marmorated stink bug	4.2	4.0	3.7	5.9	2.6	8.5	3.6	5.7

Cherry Arthropod Pests (cont.)	2020	2019	2018	2017	2016	2015	2014	2013
Aphids	3.3	1.9	4.2	2.7	3.5	9.9	0.5	5.0
American plum borer	2.3	2.2	0.9	1.2	6.1	4.2	0.0	0.7
Scales	3.3	3.1	0.9	2.4	0.9	8.0	4.1	0.0
European cherry fruit fly	7.0	9.7	-	-	-	-	-	-
(write-in): Leaf chafer	1.4	-	-	-	-	-	-	-
Cherry Diseases/Disorders	2020	2019	2018	2017	2016	2015	2014	2013
Brown rot	26.5	31.2	34.1	28.8	33.0	31.5	32.8	32.9
Bacterial canker	21.6	20.9	21.6	25.5	24.5	24.7	27.3	20.6
Leaf spot	17.8	15.8	13.0	10.9	5.3	4.9	7.6	11.2
X-disease	2.7	1.3	2.7	5.2	20.2	5.6	4.0	2.9
Fruit cracking	9.5	11.1	18.9	16.9	5.3	21.0	16.2	18.8
Black knot	4.2	6.8	5.4	8.6	5.3	3.7	7.6	4.7
Viruses	4.5	3.8	0.5	2.2	3.2	4.9	4.0	0.6
Phytophthora	2.3	2.1	2.2	1.1	3.2	1.9	1.5	1.8
Powdery mildew	4.9	3.4	1.6	0.7	0.0	1.9	2.0	6.5
Frost	4.5	3.4	-	-	-	-	-	-
(write-in): Blossom blast	1.5	-	-	-	-	-	-	-
Peach Direct (fruit-attacking) Insect Pests	2020	2019	2018	2017	2016	2015	2014	2013
Brown marmorated & other stink bugs	31.3	27.2	26.0	28.4	29.6	25.9	33.6	25.9
Plum curculio	18.0	17.2	18.9	15.1	16.0	16.3	19.9	22.4
Oriental fruit moth	19.9	20.5	22.0	19.4	20.0	20.1	24.1	20.5
Spotted wing Drosophila	7.0	9.6	13.0	14.0	11.2	13.7	12.4	17.5
Tarnished plant bug	10.2	9.3	8.7	7.6	8.0	13.1	11.6	9.9
Obliquebanded leafroller	0.0	2.6	2.8	0.4	2.4	2.9	2.5	3.8
Western flower thrips	1.6	0.0	0.0	2.5	2.4	1.9	0.0	0.0
Japanese beetle	9.0	9.3	3.5	7.2	10.4	6.1	-	-
Wasps	0.4	2.3	3.9	0.7	-	-	-	-
White "peach" (Prunicola) scale	2.7	2.0	1.2	4.7	-	-	-	-
Wheel bug	0.0	0.0	-	-	-	-	-	-
Peach Indirect Arthropod Pests	2020	2019	2018	2017	2016	2015	2014	2013
Japanese beetle	19.2	22.5	18.2	19.6	25.2	20.1	24.9	24.4
Peachtree borers	31.3	31.2	30.5	33.3	31.9	31.1	33.2	33.8
Mites	14.2	16.7	14.8	11.8	6.7	12.5	12.4	13.3
Scales	18.5	13.0	22.5	17.6	16.8	17.4	14.5	11.6
American plum borer	6.0	8.0	2.1	6.7	9.2	5.3	2.5	1.8
Green peach aphid	10.7	8.7	11.9	11.0	10.1	13.6	14.1	15.1
Peach Diseases	2020	2019	2018	2017	2016	2015	2014	2013
Brown rot	32.3	30.9	31.1	29.9	31.9	32.7	38.3	30.7
Bacterial spot	23.6	20.5	20.0	22.6	19.3	25.1	30.4	24.9
Peach leaf curl	13.5	6.3	11.1	11.5	9.2	11.2	14.5	11.1
Powdery mildew	5.7	5.6	3.4	6.6	4.2	4.8	8.9	10.0
X-disease	2.6	3.5	5.1	5.2	8.4	10.8	7.5	8.4
Perennial canker	7.9	8.7	11.5	10.1	8.4	8.8	7.5	5.7
Peach scab	1.3	6.9	0.4	2.8	3.4	3.6	0.0	3.8
Phytophthora rots	0.9	1.0	4.7	3.8	4.2	3.2	3.3	3.1
Plum pox (removed from list)	-	-	0.0	0.0	2.5	1.6	6.1	2.3
Winter kill	7.4	6.3	9.8	6.9	8.4	-	-	-
Rusty spot	0.4	3.5	1.7	0.7	0.0	-	-	-
PGRs to promote dormancy	0.9	2.4	1.3	-	-	-	-	-
Frost	3.5	4.5	-	-	-	-	-	-
Vertebrate Pests	2020	2019	2018	2017	2016	2015	2014	2013
Deer	34.8	27.5	31.1	25.1	30.7	28.9	35.8	28.8
Voles	18.5	19.9	22.6	23.8	27.1	27.3	29.2	25.5
Birds	16.7	18.0	21.5	23.5	17.4	17.9	23.3	23.6
Rabbits	2.5	4.6	3.7	5.7	4.1	4.9	7.5	7.1
Turkeys	2.9	7.2	2.6	7.0	6.0	6.1	6.0	5.8
Groundhogs	5.1	5.2	3.7	5.0	3.7	8.6	3.5	5.5
Canada geese	1.1	0.3	1.1	0.5	0.0	3.3	0.9	3.6
Beavers	0.4	0.3	0.7	0.0	0.5	0.2	1.3	0.3
Porcupines	0.0	1.0	2.2	2.3	0.5	2.3	-	-
Raccoons	1.8	0.0	0.0	0.0	0.5	0.5	-	-
Fishers (removed from list)	-	-	0.0	0.0	0.0	-	-	-
Crows	0.4	2.6	3.7	7.0	6.9	-	-	-
Foxes	0.0	0.0	0.0	0.0	-	-	-	-
Coyotes	0.0	0.7	-	-	-	-	-	-

Vertebrate Pests (cont.)	2020	2019	2018	2017	2016	2015	2014	2013
Squirrels	6.2	4.9	3.3	-	-	-	-	-
Rodents	9.8	7.8	3.7	-	-	-	-	-
Postharvest Issues	2020	2019	2018	2017	2016	2015	2014	2013
Post-harvest decay management	25.9	19.7	24.5	17.9	24.6	18.5	28.1	29.2
GAPS & Food safety (2015; & FSMA)	8.2	11.6	15.8	20.2	16.9	19.3	22.2	17.7
Post-harvest drench alternatives	3.4	9.4	12.9	12.0	8.7	11.2	15.0	16.4
Bin sanitation	1.3	4.8	3.7	6.2	8.2	9.8	7.2	9.1
Scald	5.6	7.4	2.9	4.1	9.2	5.3	5.9	8.6
Bitter Pit	25.0	20.6	23.7	18.2	16.4	22.4	15.7	6.2
Packing line sanitation	2.2	1.6	1.7	0.9	4.1	4.2	0.0	5.6
1-MCP	3.4	1.3	1.2	5.6	5.6	4.8	5.6	5.1
CO2 Damage	0.0	0.3	0.8	0.9	1.5	4.5	2.3	2.1
Flesh browning	3.0	3.9	4.6	2.6	3.6	-	-	-
Storage facilities sanitation (FSMA)	0.0	1.6	2.9	8.5	1.0	-	-	-
Small bin controlled storages (CAN)	5.2	0.0	0.0	0.0	-	-	-	-
Ultra-low oxygen	0.0	0.0	0.4	1.5	-	-	-	-
Soft scald	3.0	3.2	3.3	1.5	-	-	-	-
Soggy breakdown	1.7	1.9	1.7	-	-	-	-	-
Harvista vs. Retain	9.5	7.4	-	-	-	-	-	-
Too much rain	0.9	1.3	-	-	-	-	-	-
Lenticel breakdown	0.9	3.9	-	-	-	-	-	-
(write-in): Seasonal Drought	0.9	-	-	-	-	-	-	-
Ground Cover Management	2020	2019	2018	2017	2016	2015	2014	2013
Alternatives to herbicides, mulching, cultivation	19.7	18.7	24.6	21.5	22.7	18.8	13.6	15.6
Perennial weed management	19.4	17.8	24.6	17.8	25.6	28.1	28.6	22.7
Use of new herbicides	10.1	10.4	8.7	9.9	6.7	12.6	17.3	16.4
Herbicide resistance	9.6	8.9	6.8	5.2	9.2	7.2	5.5	7.4
Timing of control methods	7.8	7.1	9.5	10.4	9.7	12.6	17.6	16.4
Winter injury, etc. from glyphosate	2.3	3.4	3.8	4.2	13.4	6.5	7.8	7.1
Weed biology & ID	4.3	4.9	3.4	2.5	5.0	9.1	5.5	7.4
Nutrient competition	1.4	0.0	1.5	2.2	5.0	3.5	1.4	6.0
Best use of old herbicides	0.9	1.2	3.0	2.5	0.4	1.6	2.0	1.1
Herbicide phyto and soil health	2.0	5.2	4.2	5.7	2.1	-	-	-
Under-tree ground covers	3.2	2.1	3.4	9.4	-	-	-	-
Biological weed control	1.4	2.8	1.1	3.2	-	-	-	-
Soil health/carbon sequestration (removed from list)	-	-	-	5.7	-	-	-	-
Organic weed control	0.9	2.1	0.8	-	-	-	-	-
Weed control vs. yield	0.9	1.5	4.5	-	-	-	-	-
Herbicide damage to trees/fruit	10.7	12.3	-	-	-	-	-	-
Mulch types & adaptability	5.2	1.5	-	-	-	-	-	-
Application Technology Issues	2020	2019	2018	2017	2016	2015	2014	2013
Spray coverage vs. control	26.7	23.1	29.7	18.5	22.8	26.9	30.0	25.1
Calibration	17.7	19.0	14.8	16.4	25.0	24.1	23.9	21.1
Drift management	13.9	14.0	16.3	16.7	12.1	15.9	14.4	15.9
Adjuvants w/ thinners (instead of oil)	2.1	3.6	4.9	5.7	3.6	8.9	8.1	11.0
Phytotoxicity and fruit finish	8.0	9.6	5.7	10.2	12.5	12.9	13.9	8.7
Canopy spray issues	0.7	3.3	2.3	3.9	8.9	6.1	3.9	7.0
Fixed spraying systems	2.1	2.7	4.2	0.5	2.7	1.2	2.8	6.8
Single-sided sprays in high density plantings	0.3	2.5	0.4	3.9	1.8	3.0	2.5	2.6
Herbicide shields	2.1	3.6	0.8	3.7	5.4	1.2	0.6	1.9
Tower sprayer options	1.4	3.6	4.9	1.8	2.2	-	-	-
Applc of growth regulators to canopy	1.7	2.5	1.1	2.9	1.8	-	-	-
Tank mixes (synergistic or antagonistic effects)	6.9	6.9	8.0	10.2	1.3	-	-	-
Crop-adapted spraying	3.1	1.9	2.3	5.5	-	-	-	-
Better herbicide application techniques	4.2	0.8	4.2	-	-	-	-	-
2-D Canopy mgt for application optimization	2.1	1.6	0.4	-	-	-	-	-
Terrain	0.0	0.0	-	-	-	-	-	-
New sprayer technology	4.5	1.4	-	-	-	-	-	-
(write-in): Adjuvant efficacy and interactions	2.4	-	-	-	-	-	-	-
Pest Management Education Issues	2020	2019	2018	2017	2016	2015	2014	2013
Workshops for advisors/growers	18.5	22.0	20.5	17.6	18.5	20.3	27.8	22.4
Orchard demos	9.8	10.8	11.7	12.1	15.8	9.3	14.2	14.8
Production Guidelines publication	15.3	11.8	14.4	14.1	17.6	15.7	20.6	13.4
Web-based delivery methods	15.6	10.5	12.8	13.4	12.2	14.9	17.4	9.5
Pesticide applicator workshops	2.9	3.5	6.7	6.4	4.5	6.6	6.1	9.2
Pesticide safety programs	0.0	0.3	1.7	4.7	2.3	3.8	2.0	9.0
Smart phone apps	8.7	9.9	3.7	5.4	6.8	10.9	5.8	7.5

Pest Management Education Issues (cont.)	2020	2019	2018	2017	2016	2015	2014	2013
Consumer education	4.9	6.1	5.0	5.0	6.3	9.1	4.6	5.6
Biocontrol demos	4.0	3.2	3.7	7.7	2.7	4.6	0.6	5.1
Education for policy makers	2.9	8.0	5.0	2.5	5.0	4.2	0.9	3.4
Virtual IPM workshops based on plant growth simulations	0.6	0.0	0.0	0.0	0.0	0.6	-	-
e-version of Guidelines; web or app	3.5	5.7	9.4	9.4	7.7	-	-	-
Training for pstm applicator exams	0.3	0.6	1.3	1.7	0.9	-	-	-
Pesticide training for H2A/Hispanic staff	3.8	1.3	1.0	-	-	-	-	-
On-farm scout training & certification	6.4	5.4	3.0	-	-	-	-	-
Guidelines under NEWA	0.9	1.0	-	-	-	-	-	-
(write-in): Climate change adaptation growers/consumers	0.6	-	-	-	-	-	-	-
(write-in):Improving virtual presentat'n wrkshp engagement	1.4	-	-	-	-	-	-	-
General IPM Issues	2020	2019	2018	2017	2016	2015	2014	2013
Pesticide resistance	17.5	16.7	14.3	10.1	15.6	17.4	22.0	22.6
Invasive/exotic species	19.1	14.8	20.0	10.6	18.7	19.6	24.6	15.6
Weather/information delivery systems	13.5	12.7	15.3	14.8	16.9	19.0	20.6	15.4
Cost reduction	5.3	4.2	4.0	3.7	7.1	6.8	7.7	10.3
Pollinator conservation	1.7	4.5	5.0	9.6	15.1	8.2	10.3	9.8
Organic production	1.7	2.4	2.7	6.9	6.7	3.8	4.6	8.9
Pheromone technology	0.3	4.2	3.0	3.2	5.3	10.4	4.0	6.8
OP/carbamate replacements	5.6	3.0	3.0	2.0	1.3	5.4	2.6	4.2
Abandoned orchard impact	0.7	3.9	1.3	1.7	0.9	1.6	0.9	3.3
IPF certification	0.0	0.0	0.0	0.0	0.0	1.0	0.6	2.8
Groundwater monitoring	2.0	0.9	0.0	1.0	0.0	0.8	0.0	0.5
Metrics of IPM adoption	1.0	4.8	3.7	5.9	5.8	5.8	4.6	-
Impacts of potential product losses on spray progs	2.0	1.8	0.7	2.0	2.2	-	-	-
Drones for crop management	1.0	2.4	0.7	4.4	0.9	-	-	-
Beneficial insects	4.3	3.3	1.7	5.9	1.3	-	-	-
Pest monitoring & thresholds	9.2	7.9	9.3	11.6	2.2	-	-	-
Climate change adaptation	9.2	6.4	12.3	6.4	-	-	-	-
Multiple pest/disease economics & thresholds	2.0	4.2	3.0	-	-	-	-	-
Nursery stock verification	2.6	1.5	-	-	-	-	-	-
(write-in): Re-evaluation and loss of fungicides in Canada	1.3	-	-	-	-	-	-	-
Regulatory Issues	2020	2019	2018	2017	2016	2015	2014	2013
Pesticide registration procedures/restrictions	20.3	17.4	22.1	13.4	17.1	14.6	25.2	23.2
Clarification of labels	11.5	12.1	13.1	9.4	8.8	13.8	18.2	15.8
Harmonization of labels	12.6	8.5	9.7	12.7	9.3	8.3	15.7	14.8
Invasive species	14.3	10.2	13.9	9.6	17.1	14.2	17.6	12.8
Production standards for imports/exports (MRLs)	2.8	6.2	5.6	4.1	0.9	2.2	9.6	10.7
Right-to-farm/drift issues	3.1	3.9	6.7	6.6	4.6	5.9	8.0	7.9
Smaller package sizes	5.2	2.0	1.5	8.4	6.0	5.5	4.8	3.8
Use of "Generally Regarded As Safe" products	1.4	0.3	0.4	3.5	4.6	2.8	1.0	3.6
Labor Regulations	8.4	12.5	4.9	8.9	4.6	9.5	1.9	2.5
Surface water regulations	1.4	2.0	1.5	2.5	1.9	13.4	0.6	2.2
Fast-track NYS label registrations	0.7	1.3	1.9	1.5	2.3	0.4	0.3	1.6
Updates on WPS	2.4	1.6	0.4	1.5	7.9	2.8	0.3	1.1
Pollinator protection	8.0	6.2	7.9	10.4	12.0	6.7	-	-
Spanish labels	3.1	0.0	1.9	3.8	2.8	-	-	-
Container disposal	0.0	0.3	1.1	1.8	-	-	-	-
Cost containment	1.0	3.6	2.2	0.0	-	-	-	-
Food processing license fees (cider)	0.0	1.6	1.5	0.8	-	-	-	-
Soap bars for deer control	0.0	1.0	1.1	-	-	-	-	-
FSMA	1.7	4.9	2.6	1.3	-	-	-	-
Plum pox quarantine	0.0	0.0	-	-	-	-	-	-
European cherry fruit fly quarantine	1.7	4.3	-	-	-	-	-	-