



## IR-4 Ornamental Horticulture Program Grower & Extension Survey Summary 2017 – US Respondents

<http://ir4cf.rutgers.edu/Ornamental/ornamentalLiterature.cfm>

The intent of the Ornamental Horticulture Survey was to poll growers, landscape care operators, researchers, extension personnel and others affiliated with this industry on needs and issues related to disease, insect, and weed management. The responses from the survey feed directly into how IR-4 allocates its research budget for ornamental horticulture projects.

### Demographics of Survey Participants

The purpose for several questions in this survey was to describe the demographics of participating growers, landscape care personnel and others in the green industry. The survey participants came from across the United States with responses relatively equal among the four geographic regions (Table 1), with slightly more from the southern region. Fifty-six percent were growers with the next largest segment being researchers at 14% (Table 2). The operation types most represented were producers (greenhouse, nursery container, nursery field grown) (Table 3). Landscape care represented about 16% of the respondents. Very few survey participants selected more than one operation type (data not shown).

Relatively equal numbers of respondents identified themselves as using chemical control and/or IPM (Table 4). Twenty-one percent used biological controls while 10% of survey participants used organic tools. Many participants did not choose a philosophy for when to apply, but those that did make applications when needed rather than based on a calendar.

Herbaceous perennials, shrubs and trees were grown by 14 – 15% of the respondents followed closely by bedding plants and ornamental grasses (Table 5). Fewer survey respondents grew seasonal potted plants, foliage plants, cut flowers, palms, and Christmas trees.

**Table 1. IR-4 Region for survey participants**

Region	Count	Percent
NorthCentral	23	17%
Northeast	28	21%
Southern	50	37%
Western	34	25%
Total	135	100%

**Table 2. Employment sector for survey participants (single selection option)**

Segment	Count	Percent
Extension	14	10%
Government	5	4%
Grower	76	56%
Industry	11	8%
Interiorscaper	0	0%
LCP	10	7%
Researcher	19	14%
Unspecified	1	1%

**Table 3. Operation types (multiple selections)**

Production Site	Count	Percent
Greenhouse	44	24%
Nursery Container	43	23%
Nursery Field	40	22%
Landscape	29	16%
Interiorscape	7	4%
Christmas Tree Farm	16	9%
Sod Farm	7	4%

**Table 4. Disease, insect and weed management styles (multiple selections)**

Management Styles	Count	Percent
Biological Control	43	21%
Chemical Control	55	27%
IPM	47	23%
Organic	20	10%
Weekly/Monthly Sprays	0	0%
Spray at Thresholds	36	18%

**Table 5. Spectrum of crops grown (multiple selections)**

Crop Type	Count	Percent
Bedding Plants	40	12%
Cut Flowers	15	4%
Christmas Trees	18	5%
Foliage Plants	24	7%
Perennials	51	15%
Ornamental Grasses	38	11%
Palms	10	3%
Seasonal Potted Plants	24	7%
Shrubs	49	15%
Trees	48	14%
Turf	17	5%

**Type of Data Needed**

Two questions solicited information on the general direction of research and the type of data needed in the program. The first question asked whether crop safety data was needed more than efficacy, efficacy more than crop safety, or both equally. The option for needing both crop safety and efficacy equally was highly selected (Figure 1) with slightly more participants favoring crop safety data over efficacy.

**Activities to Protect Beneficial Organisms including Pollinators**

This was the second year a question was added to the survey to assess current practices used to protect beneficial organisms including pollinators during production and maintenance of plants.

**There were 127 respondents to this question, and they were able to select multiple answers. The activity most employed was scouting for pest and disease hot spots and apply crop protection tools to only those areas (**

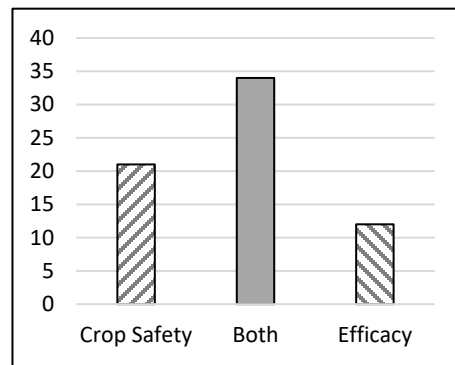
Figure 2). The next selection by frequency was applying crop protection tools when no beneficial organisms are present, followed by applying an optimal rate to manage pests or diseases without harming beneficial organisms. The next highest was applying the best tool possible for crop situation knowing that some beneficial organisms

may be harmed followed by applying systemic tools when they offer greater safety than foliar tools.

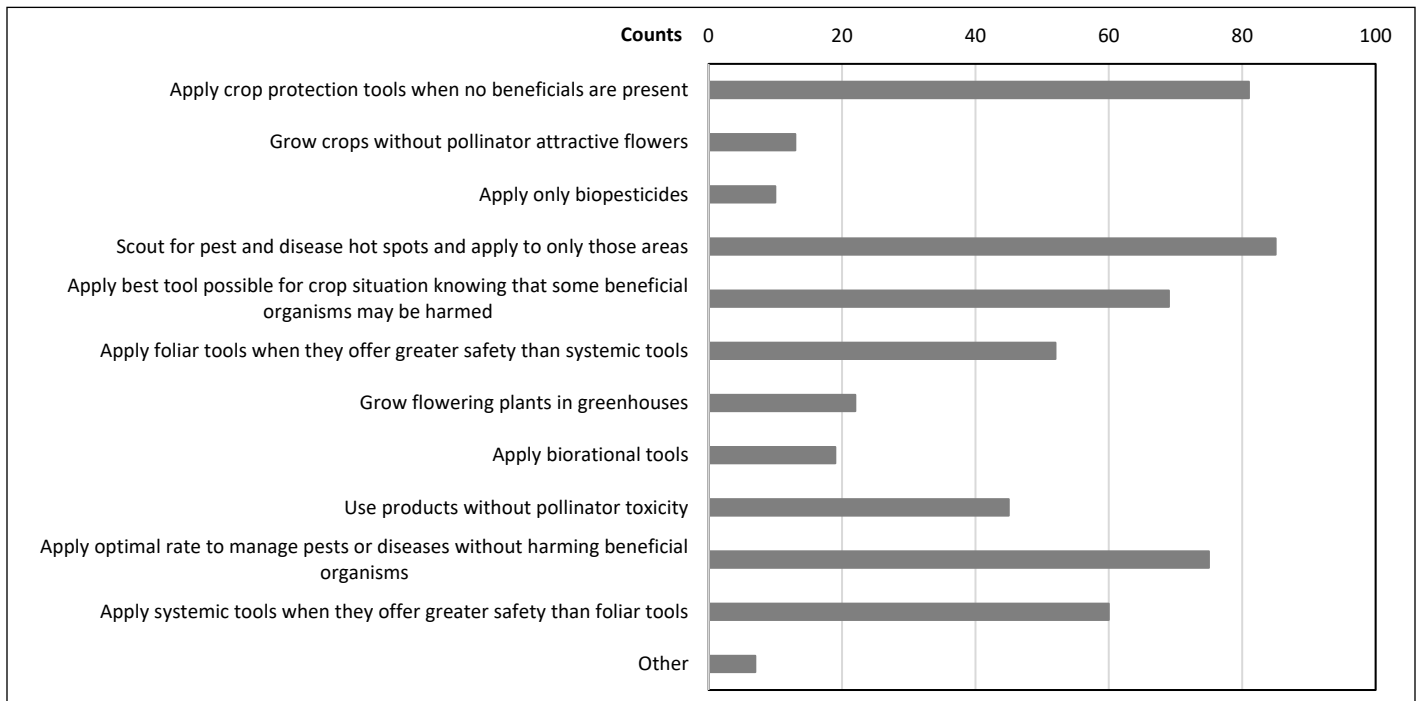
Of note, the option to apply only biopesticides was the least selected followed by growing crops without pollinator attractive flowers.

Among the write-ins (Table 6, p3), most were geared to beneficial organisms in general rather than targeting pollinators specifically. Of the two that were targeted specifically towards pollinators, the focus was on weed or vegetation management to improve habitat.

**Figure 1. Counts for type of data to be generated**



**Figure 2. Activities to protect beneficial organisms including pollinators (multiple selections)**



**Table 6. Comments included related to protecting beneficial organisms including pollinators**

<b>Additional Activities Use to Protect Beneficial Organisms</b>
Ladybug releases as needed
We use companion planting and attractant plants for aphids and other detrimental insects
Integrate vegetation management with arthropod control systems to protect pollinators
I don't typically treat with insecticides, but my cooperators do
Manage invasive weeds that reduce pollinator diversity.
Time of Applications
Release ladybugs for aphid control in lindens.
I am a research so not applicable.
Hand pollination
Elbow grease, sweat

**Ranking of Issues by Discipline**

Each of the issues within the disciplines listed by participants was given a weighted ranking based on the order written. Each was also assigned to a group based on similar diseases, pests, or weeds. This section also examines the survey responses grouped by production site.

**Entomology**

When all responses were grouped together the top five pests of concern were borers & beetles, mites & spider mites, thrips, scale & mealybugs, and aphids (Table 7, p3). Note that the calculation for weighted ranking here removes any duplication for crop or production site.

When weighted rankings were calculated for categories of crops, the top 5 pests changed for each crop type (

Table 10, p5). Three pest groups were present in all five crop types: mites & spider mites, scale & mealybugs, and thrips. There was little consistency among the rest of the top five pests.

When the weighted rankings were calculated based on the production sites, there were some differences among the order, but 4 of the top 5 were similar (Table 11, p5). Four pest types were in the top five for each primary production site: borers & beetles, mites & spider mites, scale & mealybugs, and thrips. For greenhouse and container nurseries, aphids was the fifth pest group while for field in ground white grubs & root weevils was the fifth and for landscape the remaining group was whiteflies.

The specific pests mentioned most frequently included thrips (38) and flea beetles (27) (Table 16, p6)

**Table 7. Ranking of pests with limited management choices.**

<b>Pest Group</b>	<b>Weighted Ranking</b>
Borers & Beetles	90
Mites & Spider Mites	74
Thrips	55
Scale & Mealybugs	48
Aphids	26
White Grubs & Root Weevils	15
Whiteflies	12
Leaf Hoppers	10
Other	8
Snails & Slugs	7
Lepidopterans	7
Lygus	6
Turf Pests	5
Lace Bugs	5
Symphyla	3
Leafminers	3
Ants	2
Nematodes	2
Psyllids	2
Adelgids	1
Gall Insects	1
Turf Insects	1
Midges	1



### Plant Pathology

When all responses were grouped together, the top five diseases included leaf spots & anthracnose, crown & root rots, bacterial diseases, powdery mildew, and Phytophthora & Pythium (Table 8, p4). The crown & root rot group contains diseases affecting roots, crowns, and lower trunks that are clearly not caused by Pythium or Phytophthora. Note that the calculation for weighted ranking here removes any duplication for crop or production site.

When the rankings were calculated based on the crop types there were some differences among the groups (Table 12, p5). No disease groups appeared consistently across crop types. For bedding plants & seasonal potted plants, downy mildew and powdery mildew were the two top diseases. Powdery mildew was highest for foliage & perennial plants, while leaf spots & anthracnose was the highest ranked for woody perennials

For the rankings grouped by production site, bacterial diseases, crown & root rot, leaf spots & anthracnose, and powdery mildew appeared in all four production sites. (Table 13, p5). Both crown & root rots and *Phytophthora* & *Pythium* categories appeared in three of the four production sites.

The specific diseases mentioned most frequently include powdery mildew (37) and botrytis (24) Table 17 p8

### Weed Science

When all responses were grouped together, the top five weeds included Broadleaf Summer Annuals, Broadleaf Winter Annuals, Broadleaf Perennials, Grass, and Sedge & Nutsedge (Table 9, p4). Note that the calculation for weighted ranking here removes any duplication for crop or production site.

Although there were some variations between rankings whether the responses are grouped together or separated by crop or production site, there was a general trend with broadleaf perennials and broadleaf summer annuals, sedge & nutsedge, and liverworts & moss and algae in the top five weed types across crops and production sites (Table 14, p6, Table 15 – p6).

In several weed groups, there were no individual weeds mentioned more than others (Table 18, p10). However, for several weed groups, there were certain weeds viewed as more problematic. In their respective weed groups, spurge, conyza, bittercress, liverwort and nutsedge (unspecific) ranked highest.

The specific weeds mentioned most include conyza (25) and equisetum (14) (Table 18 p10).

**Table 8. Ranking of diseases with limited management choices.**

Disease Group	Weighted Ranking
Leaf Spots & Anthracnose	58
Crown & Root Rot	55
Bacterial Diseases	45
Powdery Mildew	40
Phytophthora & Pythium	33
Rusts	28
Botrytis	24
Downy Mildew	21
Foliar Blights	19
Other	19
Virus	13
Canker	8
Turf Diseases	6
Phytoplasma	5
Nematodes	3
Vascular Wilts	2

**Table 9. Ranking of weeds with limited management choices.**

Weed Group	Weighted Ranking
Broadleaf - Summer Annual	36
Broadleaf - Winter Annual	33
Broadleaf - Perennial	32
Grass	25
Other	25
Sedge & Nutsedge	22
Horsetail & Similar Weeds	17
Liverworts & Moss & Algae	16
Broadleaf - Annual/Perennial	13
Comment	11
Broadleaf	9
Broadleaf - Winter Annual/Biennial	9
Vine - Winter/Summer Annual	5
Non-grass Monocots	3
Broadleaf - Biennial	3
Broadleaf - Annual	3
Turf weeds	1

**Table 10. Top 5 issues by crop category for Entomology.**

	<b>Bedding Plants &amp; Seasonal Potted Plants</b>	<b>Cut Flowers</b>	<b>Ornamental Grasses</b>	<b>Foliage &amp; Perennial Plants</b>	<b>Shrubs, Trees, Palms &amp; Christmas Trees</b>
1	Thrips (31)	Thrips (12)	Mites & Spider Mites (9)	Thrips (32)	Borers & Beetles (74)
2	Mites & Spider Mites (24)	Mites & Spider Mites (5)	Thrips (4)	Mites & Spider Mites (32)	Mites & Spider Mites (63)
3	Whiteflies (12)	Lygus (3)	Borers & Beetles (3)	Borers & Beetles (30)	Scale & Mealybugs (42)
4	Aphids (8)	Snails & Slugs (2)	Scale & Mealybugs (3)	Aphids (12)	Thrips (19)
5	Scale & Mealybugs (8)	Scale & Mealybugs (1)	Ants (2)	Scale & Mealybugs (10)	Aphids (17)

**Table 11. Top 5 issues by production site for Entomology.**

	<b>Greenhouse</b>	<b>Nursery Container</b>	<b>Nursery Field</b>	<b>Landscape</b>
1	Mites & Spider Mites (110)	Mites & Spider Mites (111)	Borers & Beetles (95)	Mites & Spider Mites (53)
2	Thrips (87)	Borers & Beetles (102)	Mites & Spider Mites (69)	Borers & Beetles (40)
3	Borers & Beetles (74)	Thrips (80)	Thrips (67)	Thrips (30)
4	Scale & Mealybugs (50)	Scale & Mealybugs (53)	Scale & Mealybugs (24)	Scale & Mealybugs (26)
5	Aphids (26)	Aphids (28)	White Grubs & Root Weevils (17)	Whiteflies (15)

**Table 12. Top 5 issues by crop category for Plant Pathology.**

	<b>Bedding Plants &amp; Seasonal Potted Plants</b>	<b>Cut Flowers</b>	<b>Ornamental Grasses</b>	<b>Foliage &amp; Perennial Plants</b>	<b>Shrubs, Trees, Palms &amp; Christmas Trees</b>
1	Downy Mildew (21)	Crown & Root Rot (6)	Phytophthora & Pythium (7)	Powdery Mildew (23)	Leaf Spots & Anthracnose (52)
2	Powdery Mildew (21)	Botrytis (5)	Rusts (7)	Crown & Root Rot (16)	Crown & Root Rot (32)
3	Crown & Root Rot (14)	Phytophthora & Pythium (3)	Foliar Blights (3)	Bacterial Diseases (16)	Powdery Mildew (29)
4	Phytophthora & Pythium (12)	Virus (3)	Leaf Spots & Anthracnose (3)	Botrytis (13)	Bacterial Diseases (27)
5	Botrytis (10)	Leaf Spots & Anthracnose (2) Bacterial Diseases (2)	Botrytis (2)	Rusts (12)	Foliar Blights (19)

**Table 13. Top 5 issues by production site for Plant Pathology.**

	<b>Greenhouse</b>	<b>Nursery Container</b>	<b>Nursery Field</b>	<b>Landscape</b>
1	Powdery Mildew (63)	Powdery Mildew (56)	Crown & Root Rot (53)	Leaf Spots & Anthracnose (25)
2	Crown & Root Rot (55)	Crown & Root Rot (52)	Powdery Mildew (40)	Crown & Root Rot (25)
3	Bacterial Diseases (40)	Phytophthora & Pythium (43)	Leaf Spots & Anthracnose (40)	Powdery Mildew (20)
4	Botrytis (31)	Leaf Spots & Anthracnose (43)	Phytophthora & Pythium (37)	Bacterial Diseases (18)
5	Leaf Spots & Anthracnose (29)	Bacterial Diseases (41)	Bacterial Diseases (37)	Phytophthora & Pythium (16) Botrytis (16)

**Table 14. Top 5 issues by crop category for Weed Science.**

	<b>Bedding Plants &amp; Seasonal Potted Plants</b>	<b>Cut Flowers</b>	<b>Ornamental Grasses</b>	<b>Foliage &amp; Perennial Plants</b>	<b>Shrubs, Trees, Palms &amp; Christmas Trees</b>
1	Broadleaf - Annual/Perennial (11)	Broadleaf - Perennial (7)	Broadleaf - Summer Annual (16)	Broadleaf - Summer Annual (18)	Broadleaf - Winter Annual (29)
2	Sedge & Nutsedge (10)	Sedge & Nutsedge (5)	Liverworts & Moss & Algae (8)	Broadleaf - Perennial (13)	Broadleaf - Summer Annual (28)
3	Broadleaf - Summer Annual (10)	Broadleaf - Summer Annual (2)	Sedge & Nutsedge (7)	Liverworts & Moss & Algae (13)	Broadleaf - Perennial (23)
4	Grass (7)	Horsetail & Similar Weeds (2)	Broadleaf - Winter Annual (7)	Sedge & Nutsedge (11)	Sedge & Nutsedge (19)
5	Liverworts & Moss & Algae (7)	Liverworts & Moss & Algae (2)	Broadleaf - Perennial (6)	Broadleaf - Winter Annual/Biennial (9)	Grass (17)

**Table 15. Top 5 issues by production site for Weed Science**

	<b>Greenhouse</b>	<b>Nursery Container</b>	<b>Nursery Field</b>	<b>Landscape</b>
1	Broadleaf - Summer Annual (59)	Broadleaf - Summer Annual (63)	Sedge & Nutsedge (40)	Broadleaf - Summer Annual (44)
2	Liverworts & Moss & Algae (44)	Sedge & Nutsedge (51)	Liverworts & Moss & Algae (40)	Sedge & Nutsedge (31)
3	Sedge & Nutsedge (32)	Liverworts & Moss & Algae (44)	Broadleaf - Winter Annual (40)	Broadleaf - Perennial (31)
4	Broadleaf - Perennial (28)	Broadleaf - Perennial (38)	Broadleaf - Summer Annual (40)	Liverworts & Moss & Algae (25)
5	Broadleaf - Winter Annual/Biennial (24)	Broadleaf - Winter Annual (32)	Broadleaf - Perennial (38)	Horsetail & Similar Weeds (16)

**Table 16. Specific issues for each pest group.**

<b>Pest Group</b>	<b>Pest</b>	<b>Weighted Ranking</b>
Adelgids	Hemlock Woolly Adelgid	1
Ants	Fire Ants	2
	Imported fire ants (better regulatory treatments)	2
Aphids	Aphids	16
	Aphids, balsam	2
	Aphids, herbs	2
	Aphids, vegetables	1
	Balsam Woolly Aphids	2
	Woolly Aphids	3
Borers & Beetles	Ambrosia Beetle, styrax, dogwood	3
	Ambrosia Beetles	6
	Ambrosia Beetles, dogwood	3
	Borers	10
	Coreopsis Beetle, coreopsis	3
	European Corn Borer	2
	Flea Beetle	27
	Flea Beetle, chelone	3
	Flea Beetles	2
	Harlequin Beetles, cleome	3
	Japanese Beetle Grub	2
	Japanese Beetles, hydrangea paniculata	3
	June Beetle Grub	3
Lily Leaf Beetle	1	

Pest Group	Pest	Weighted Ranking
	Pacific Flatheaded Borer, apple	2
	Redheaded Flea Beetle	4
	Rose Stem Girdler, rose	3
	Systema frontalis, red-headed flea beetle (larvae)	3
	White Pine Weevil	3
	White Pine Weevil, blue spruce	3
Gall Insects	Gall Wasp, black oak	1
Lace Bugs	Azalea Lace Bug	2
	Lacewing	3
Leaf Hoppers	Leaf Hoppers	6
	Leaf Hoppers, maple	1
Leafminers	Leafminers	3
Lepidopterans	Armyworms, boston fern	2
	Bagworms	2
	Bagworms, arborvitae	1
	Olive Shootworm, ligustrum	2
Lygus	Lygus	3
	Lygus, gerbera	3
Midges	Needle Midge, douglas fir	1
Mites & Spider Mites	Broad Mite & Cyclamen	2
	Broad Mites	15
	Coneflower Rosette Mite	3
	Eriophyid Mites on Forestiera pub. and Cercocarpus mon.	3
	Mites	17
	Mites, arborvitae	3
	Mites, arbs	3
	Mites, ornamental grasses	1
	Mites, spikes	3
	Oak itch mite on pin oaks and other red oaks	1
	Rust Mites, privet	3
	Spider Mites	13
	Spider Mites, ivy	1
	Twospotted Spider Mites	1
	Twospotted Spider Mites, buddliea	3
Nematodes	Foliar Nematodes	2
Other	Canna Leaf Roller	1
	Deer rubbing trees	2
Psyllids	Systemic insecticide not in IRAC Class 4 neonicotinoides	3
	Psyllids on Forestiera, Cercocarpus and Salix exigua	2
Scale & Mealybugs	Armored Scales	3
	Crape Myrtle Bark Scale	5
	Gloomy Scale, red maple	2
	Ground Pearls, turf	2
	Japanese Maple Scale	2
	Mealybugs	3
	Mealybugs, orchids	2
	Pine Needle Scale	3
	Prunicola Scale, privet, cherry	2
	Scale	8
	Scale / Mealybugs	1
	Scale, cacti	1
	Scale, holly, grasses	3



Pest Group	Pest	Weighted Ranking
	Scale, holly, magnolia	2
	Scale, sago palms, magnolias	3
	Soft Scale, angelonia	3
	Tulip Tree Scale, magnolia	3
Snails & Slugs	Amber Snails	2
	Snails	3
	Snails & Slugs	2
Symphylla	Symphylans	3
Thrips	Chilli Thrips	3
	Thrips	38
	Thrips, lupine	2
	Thrips, new guineas	3
	Thrips, verbena	3
	Western Flower Thrips	6
Turf Pests	Chinch Bugs, turf	1
	Bermudagrass Mite, bermudagrass	3
	Mole Crickets	2
	White Grubs, turf	2
White Grubs & Root Weevils	Black Vine Weevil	2
	Black Vine Weevil, rhododendron	2
	Grubs	3
	Japanese Beetles	2
	Non-pyrethroid control for ADULT Black Vine Root Weevil	3
	Oriental Beetle Grub	1
Whiteflies	Ash Whitefly	3
	Whiteflies	6
	Whiteflies, poinsettia	3

**Table 17. Specific issues for each disease group**

Disease Group	Disease/Pathogen *	Weighted Ranking
Bacterial Diseases	Bacteria	16
	Bacterial leaf spot	12
	Erwinia	6
	Fire blight	4
	Pseudomonas	2
	Xanthomonas	2
Botrytis	Botrytis	24
Canker	Botryosphaeria	3
	Phomopsis	5
Crown & Root Rot	Collar rot	3
	Damping off	6
	Fusarium	13
	Rhizoctonia	6
	Rhizoctonia, azalea	3
	Root rot	17
	Root rot, dahlia	3
	Thielaviopsis	1
Downy Mildew	Downy mildew	10
	Downy mildew, basil	6
	Downy mildew, impatiens	5
Foliar Blights	Boxwood blight	6
	Diplodia	4

Disease Group	Disease/Pathogen *	Weighted Ranking
	Fungal disease	3
	Interior Needle Blight	5
	Tip Blight	1
Leaf Spots & Anthracnose	Alternaria	2
	Anthracnose	12
	Brown needles	2
	Cercospora	6
	Cladosporium and Botrytis of peony	2
	Colletotrichum	2
	Leaf Blotch	1
	Leaf Spot	5
	Monilinia	3
	Mummy berry	3
	Needle cast (Rhizosphaera)	4
	Needle cast, swiss	3
	Needle cast, swiss, douglas fir	5
	Shot hole (bacterial, fungal, abiotic), prunus	4
	Sirococcus needle blight of Cedrus	3
	Sphaeropsis on Holly	1
Nematodes	Nematode	2
	Root Knot nematode	1
Other	Aerial rhizoctonia	2
	Burr Oak Blight	3
	CAR	3
	Fungal disease	3
	Trees shipped to Canada	3
	Unknown	1
	Witches' broom	4
Phytophthora & Pythium	Oak death syndrome	1
	Phytophthora	17
	Pythium	15
Phytoplasma	Aster yellows	2
	Elm yellow(s)	3
Powdery Mildew	Powdery Mildew	37
	Powdery Mildew, dahlia	1
	Powdery Mildew, oak	2
Rusts	Panicum rust on Panicum	2
	Rust	6
	Rust, daylily	3
	Rust, hawthorn	3
	Rust, hollyhock	3
	Rust, malva	3
	Rust, ornamental grass	2
	Rusts	4
	Trellis rust on Pear	2
Turf Diseases	Necrotic ring in turf (true control rather than suppression)	3
	Necrotic Ring Spot (Ophiosphaerella korrae)	3
Vascular Wilts	Verticillium, phlox	2
Virus	INSV	2
	Rose Rosette Virus	6
	TSWV/INSV	3
	Virus	2

\*The authors standardized the format for presenting diseases and pathogens. In parentheses are Latin names, where either mentioned by survey participants or when specific diseases were mentioned to foster clarity (ie rusts). Where crops were mentioned, the disease or pathogen is listed first followed by a comma and one or more crops.

**Table 18. Specific issues for each weed group.**

Weed Group	Weed	Weighted Ranking
Broadleaf	Bindweed	7
	Giant Ragweed	2
Broadleaf - Annual	Palmer Amaranth	3
Broadleaf - Annual/Perennial	Artillery Weed	3
	Oxalis	10
Broadleaf - Biennial	Wild Carrot	3
Broadleaf - Perennial	Canada Thistle	3
	Chickweed	3
	Clover	3
	Fireweed/Epilobium	1
	Goldenrod	3
	Lesser celandine	6
	Mugwort	4
	Multiflora Rose	3
	Thistle	6
Broadleaf - Summer Annual	Chamber bitter in all turf types and landscape beds	2
	Doveweed	3
	Eclipta	2
	Eclipta prostrata	3
	Galinsoga	3
	Mallow	2
	Phyllanthus	2
	Pigweed	3
	Polygonum persicaria	2
	Prostrate Spurge	1
	Purslane	2
	Ragweed	1
	Spurge	9
	Velvetleaf	1
Broadleaf - Winter Annual	Conyza	25
	Groundsel	2
	Ragweed	3
	Vetch and Quackgrass	3
Broadleaf - Winter Annual/Biennial	Bittercress	3
	Hairy Bittercress	3
	Marsh Yellowcress	3
Comment	Glyphosate resistant weeds	1
	Greenhouse grown shrub liners (less than 1 gallon container)	1
	Pre-emergent herbicide inside greenhouses	3
	Pre-emergent herbicides for phlox, stachys, veronica, leucanthemum	3
	Weeds	3
Grass	Bluegrass	6
	Cheatgrass	2
	Crabgrass	5
	Dallisgrass	8
	Grass	2

<b>Weed Group</b>	<b>Weed</b>	<b>Weighted Ranking</b>
	Hairy Crabgrass	2
Horsetail & Similar Weeds	Equisetum	14
	Kyllinga	3
Liverworts & Moss & Algae	Liverwort	11
	Nostoc	2
	Pearlwort	3
Non-grass Monocots	Wild Garlic	3
Other	All	2
	Barn Straw	3
	Common weeds in Hosta	3
	Erodium	1
	In large trees in containers	1
	In propagation trays	3
	In tropical plant production	2
	Invasive weeds like japanese knot weed in ornamental settings	3
	Keikei	2
	Phragmite	2
	Toadflax (yellow, dalmation) in residential lawns, landscapes	2
	Weeds in general	1
Sedge & Nutsedge	Nutsedge	7
	Nutsedges	2
	Sedge	2
	Yellow Nutsedge	11
Turf weeds	Oxeye daisy in residential lawns, landscapes	1
Vine - Winter/Summer Annual	Morning glory	2
	Morning Glory various Vines	3