

Bees, Bugs & Blooms

Pollinator Plant Trial at Penn State Southeast Agricultural Research and Extension Center

1446 Auction Road, Manheim, PA 17545

Goals of trial: To compare native plant species and cultivars for their attractiveness to pollinators and their suitability for home and/or farm landscapes

2012 1077 bee specimens collected

2013 280 bee specimens collected

Best plants for pollinator visitor diversity

2012

1. Clustered mountain mint (*Pycnanthemum muticum*)
2. Coastal plain joe pye weed (*Eupatoriadelphus dubius*)
3. Stiff goldenrod (*Solidago rigida*)
4. Swamp milkweed (*Asclepias incarnata*)
5. Gray goldenrod (*Solidago nemoralis*)
6. Rattlesnake master (*Eryngium yuccifolium*)
7. Flat topped aster (*Doellingeria umbellata*)
8. Spotted joe pye weed (*Eupatoriadelphus maculatus* 'Bartered Bride')

2013

1. Clustered mountain mint (*Pycnanthemum muticum*)
2. Stiff goldenrod (*Solidago rigida*)
3. Blazing star (*Liatris spicata*)
4. Common milkweed (*Asclepias syriaca*)
5. Lance-leaved coreopsis (*Coreopsis lanceolata*)
6. Thoroughwort (*Eupatorium hyssopifolium*)
7. Coastal plain joe pye weed (*Eupatoriadelphus dubius*)
8. Fireworks sundrops (*Oenothera fruticosa* 'Fireworks')

Best plants for sheer # of insect visitors

2012

1. Clustered mountain mint (*Pycnanthemum muticum*): 78 insects*
2. Gray goldenrod (*Solidago nemoralis*): 36 insects
3. Coastal plain joe pye weed (*Eupatoriadelphus dubius*): 30 insects
4. Thoroughwort (*Eupatorium hyssopifolium*): 28 insects
5. Swamp milkweed (*Asclepias incarnata*): 24 insects
6. Stiff goldenrod (*Solidago rigida*): 23 insects

2013

1. Clustered mountain mint (*Pycnanthemum muticum*): 51 insects
2. Rattlesnake master (*Eryngium yuccifolium*): 51 insects
3. Wild bergamot (*Monarda fistulosa*): 31 insects
4. Zagreb whorled tickseed (*Coreopsis verticillata* 'Zagreb'): 26 insects
5. Blazing star (*Liatris spicata*): 23 insects
6. Bluebird smooth aster (*Symphotrichum laeve* 'Bluebird'): 23 insects

*Mean number of insects observed per plot in 2 minutes

Best plants for sheer # of bee & syrphid visitors

2012

1. Clustered mountain mint (*Pycnanthemum muticum*): 19 bees/syrphids*
2. Gray goldenrod (*Solidago nemoralis*): 14 bees/syrphids
3. Pink tickseed (*Coreopsis rosea*): 14 bees/syrphids
4. Lance-leaved coreopsis (*Coreopsis lanceolata*): 13 bees/syrphids
5. Spotted joe pye weed (*Eupatoriadelphus maculatus* 'Bartered Bride'): 12 bees/syrphids
6. Rattlesnake master (*Eryngium yuccifolium*): 12 bees/syrphids

2013

1. Rattlesnake master (*Eryngium yuccifolium*): 38 bees/syrphids*
2. Wild bergamot (*Monarda fistulosa*): 31 bees/syrphids
3. Clustered mountain mint (*Pycnanthemum muticum*): 29 bees/syrphids
4. Zagreb whorled tickseed (*Coreopsis verticillata* 'Zagreb'): 24 bees/syrphids
5. Bluebird smooth aster (*Symphyotrichum laeve* 'Bluebird'): 22 bees/syrphids
6. Culver's root (*Veronicastrum virginicum*): 20 bees/syrphids

*Mean number of bees/syrphids observed per plot in 2 minutes

Best plants for attracting butterflies

2012

1. Coastal plain joe pye weed (*Eupatoriadelphus dubius*): 17 butterflies/skippers*
2. Blue mistflower (*Conoclinium coelestinum*): 5 butterflies/skippers
3. Showy aster (*Eurybia spectabilis*): 4 butterflies/skippers
4. Sweet joe pye weed (*Eutrochium purpureum* subsp. *maculatum* 'Gateway'): 3 butterflies/skippers
5. Dwarf blazing star (*Liatris microcephala*): 3 butterflies/skippers

2013

1. Coastal plain joe pye weed (*Eupatoriadelphus dubius*): 11 butterflies/skippers*
2. Blazing star (*Liatris spicata*): 5 butterflies/skippers*
3. Dwarf blazing star (*Liatris microcephala*): 5 butterflies/skippers*
4. Sweet joe pye weed (*Eutrochium purpureum* subsp. *maculatum* 'Gateway'): 4 butterflies/skippers*
5. Hollow joe pye weed (*Eupatoriadelphus fistulosus*): 3 butterflies/skippers*

*Mean number of butterflies/skippers observed per plot in 2 minutes

Plants that attracted parasites/predators of the brown Marmorated stink bug

Family	Biocontrol Agent	Predator or Parasitoid	Pest	Flowers Visited
Crabronidae	<i>Bicyrtes quadrifasciata</i>	Predator	BMSB & other stink bug nymphs	Clustered mountain mint
	<i>Astata unicolor</i>	Predator	BMSB & other stink bug nymphs	Wild bergamot Boneset
	<i>Cerceris fumipennis spp.</i>	Predator	Buprestid beetles including Emerald Ash Borer and other beetle adults	Butterfly weed, Whorled tickseed, Swamp milkweed, Flat topped aster
Vespidae	<i>Monobia quadridens</i>	Predator	Lepidoptera larvae	Clustered mountain mint
Sphecidae	<i>Isodontia mexicana</i>	Predator	Snowy Tree Crickets, Katydid	Clustered Mountain Mint, Rattlesnake Master
Tachinidae	<i>Trichopoda pennipes</i>	Parasitoid	Adult stink bugs including BMSB, Squash Bugs	Clustered Mountain Mint, Red Raspberry, Butterflyweed, Thoroughwort, Boneset
	<i>Gymnosoma sp.</i>	Parasitoid	Adult Stink Bugs	Boneset, Wild Carrot, Goldenrod
	<i>Cyclodroma sp.</i>	Parasitoid	Adult Stink Bugs	Thoroughwort
	<i>Jurinia pompalis</i>	Parasitoid	Lepidoptera larvae	Whorled Tickseed, Zagreb Whorled Tickseed, Goldenrods

CULTIVARS COMPARED

Comparing <i>Monarda didyma</i> (Bee Balm) and Cultivars		
Attracted fewest pollinators	➔	Attracted the most pollinators
<i>Monarda didyma</i> 'Jacob Cline'		<i>Monarda didyma</i> straight species
		Monarda x'Peters Fancy Fuschia'
Comparing <i>Monarda fistulosa</i> (Wild Bergamot) and cultivar		
Attracted fewest pollinators	➔	Attracted the most pollinators
<i>Monarda fistulosa</i> 'Claire Grace'		<i>Monarda fistulosa</i> straight species
Comparing <i>Symphyotrichum novae-angliae</i> (New England Aster) and cultivar		
Attracted fewest pollinators	➔	Attracted the most pollinators
<i>Symphyotrichum novae-angliae</i> 'Purple Dome'		<i>Symphyotrichum novae-angliae</i>

Data by Dr. Katie Ellis, January 2014

Connie Schmotzer, Penn State Extension, cxs51@psu.edu