

The Bee & Butterfly Habitat Fund

Minnesota Monarch Mix

2021

Species	Scientific Name	PLS lbs per acre	Seeds per sq ft	% of Mixture	Bloom Period	Pollinator Value
Big Bluestem, Pawnee	<i>Andropogon gerardii</i>	0.400	1.32	3.63%	--	--
Canada Wildrye	<i>Elymus canadensis</i>	0.500	1.31	3.59%	--	--
Little Bluestem, VNS	<i>Schizachyrium scoparium</i>	0.300	1.66	4.55%	--	--
Plains Oval Sedge	<i>Carex brevior</i>	0.060	0.89	2.45%	--	--
Prairie Junegrass	<i>Koeleria pyramidata</i>	0.020	1.06	2.92%	--	--
Sideoats Grama, Native Source	<i>Bouteloua curtipendula</i>	0.300	1.10	3.01%	--	--
Western Wheatgrass, Barton	<i>Elymus smithii</i>	0.300	0.78	2.15%	--	--
Anise Hyssop	<i>Agastache foeniculum</i>	0.025	0.83	2.27%	3	5
Aromatic Aster	<i>Aster oblongifolius</i>	0.010	1.18	3.25%	3	5
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.030	1.09	2.98%	2	1
Blacksamson	<i>Echinacea angustifolia</i>	0.010	0.06	0.16%	2	5
Blanketflower	<i>Gaillardia aristata</i>	0.200	0.86	2.35%	1	4
Blue Vervain	<i>Verbena hastata</i>	0.030	1.04	2.84%	2	5
Blue-eyed Grass, Native Source	<i>Sisyrinchium campestre</i>	0.006	0.10	0.27%	1	5
Butterfly Milkweed	<i>Asclepias tuberosa</i>	0.010	0.02	0.04%	2	5
Canada Milkvetch	<i>Astragalus canadensis</i>	0.060	0.37	1.02%	2	4
Canada Tick-trefoil	<i>Desmodium canadense</i>	0.080	0.16	0.44%	2	5
Clasping Coneflower	<i>Rudbeckia amplexicaulis</i> or <i>Dracopis amplexicaulis</i>	0.030	1.10	3.02%	1	2
Common Evening Primrose	<i>Oenothera biennis</i>	0.030	0.95	2.60%	2	4
Common Milkweed	<i>Asclepias syriaca</i>	0.050	0.09	0.26%	2	5
Compass Plant	<i>Silphium laciniatum</i>	0.020	0.00	0.01%	2	5
Cup Plant	<i>Silphium perfoliatum</i>	0.040	0.06	0.16%	2	5
Deer Vetch, Native Source	<i>Acmispon americanus</i> or <i>Lotus unifoliolatus</i>	0.040	0.06	0.18%	3	4
Entire-leaved Rosinweed, Native Source	<i>Silphium integrifolium</i>	0.040	0.03	0.09%	2	5
False Boneset	<i>Brickellia eupatorioides</i>	0.030	0.36	0.99%	3	3
False or Oxeye Sunflower	<i>Heliopsis helianthoides</i>	0.200	0.48	1.31%	2	5
Foxglove Beardstongue	<i>Penstemon digitalis</i>	0.030	0.28	0.76%	1	5
Golden Alexander	<i>Zizia aurea</i>	0.090	0.36	1.00%	1	5
Gray Goldenrod	<i>Solidago nemoralis</i>	0.008	0.19	0.51%	3	4
Grayhead Coneflower	<i>Ratibida pinnata</i>	0.060	0.59	1.62%	2	4
Heath Aster	<i>Symphotrichum ericoides</i>	0.008	0.93	2.54%	3	5
Hoary Vervain	<i>Verbena stricta</i>	0.050	0.67	1.85%	2	5
Illinois Bundleflower	<i>Desmanthus illinoensis</i>	0.350	0.68	1.87%	2	5
Ironweed	<i>Vernonia fasciculata</i>	0.030	0.26	0.73%	2	5
Late or Giant Goldenrod, Native Source	<i>Solidago gigantea</i>	0.006	1.04	2.86%	3	5
Maximilian Sunflower	<i>Helianthus maximiliani</i>	0.080	0.36	0.99%	3	5
Missouri Goldenrod	<i>Solidago missouriensis</i>	0.006	0.87	2.39%	2	5
New England Aster	<i>Symphotrichum novae-angliae</i>	0.020	0.48	1.33%	3	5
Plains Coreopsis	<i>Coreopsis tinctoria</i>	0.020	1.48	4.06%	2	2
Plains Sunflower	<i>Helianthus petiolaris</i>	0.040	0.10	0.29%	3	5
Prairie Cinquefoil	<i>Drymocallis arguta</i>	0.009	0.91	2.50%	2	3
Purple Coneflower	<i>Echinacea purpurea</i>	0.300	0.80	2.19%	2	5
Purple Prairieclover	<i>Dalea purpurea</i>	0.200	1.46	3.99%	2	5
Rough Gayfeather	<i>Liatris aspera</i>	0.015	0.09	0.26%	3	5
Rough Purple Gerardia, Native Source	<i>Agalinis aspera</i>	0.005	0.24	0.67%	2	4
Roundhead Lespedeza	<i>Lespedeza capitata</i>	0.050	0.20	0.55%	3	4
Sawtooth Sunflower	<i>Helianthus grosseserratus</i>	0.010	0.14	0.40%	3	5
Shell-leaf Penstemon	<i>Penstemon grandiflorus</i>	0.030	0.15	0.40%	1	5
Showy Partridgepea	<i>Chamaecrista fasciculata</i>	0.300	0.45	1.23%	2	5
Showy-wand Goldenrod	<i>Solidago speciosa</i>	0.009	0.88	2.43%	3	5
Skyblue Aster	<i>Symphotrichum oolentangiense</i>	0.010	0.29	0.81%	3	5
Smooth Blue Aster	<i>Symphotrichum laeve</i>	0.025	0.58	1.60%	3	5
Stiff Goldenrod	<i>Solidago rigida</i>	0.030	0.46	1.27%	3	5
Stiff Sunflower	<i>Helianthus pauciflorus</i>	0.030	0.51	1.40%	2	4
Swamp Milkweed	<i>Asclepias incarnata</i>	0.028	0.10	0.27%	2	5
Tall Boneset	<i>Eupatorium altissimum</i>	0.020	0.37	1.01%	3	4
Thickspike Gayfeather	<i>Liatris pycnostachya</i>	0.030	0.08	0.23%	3	5
Upright Coneflower	<i>Ratibida columnifera</i>	0.050	0.85	2.32%	2	2
Western Yarrow	<i>Achillea millefolium</i>	0.018	1.18	3.23%	1	2
White Prairieclover	<i>Dalea candida</i>	0.080	0.56	1.53%	2	5
Wild Bergamot	<i>Monarda fistulosa</i>	0.030	0.88	2.40%	2	5
Rice Hulls - Filler for low planting rate mixtures		3.000	0.00	0.00%	--	--
Grasses Total:		1.880	8.127	22.30%		
Wildflower/Forb/Legume Total:		3.018	28.317	77.70%		
Filler Total:		3.000	0.000	0.00%		
Total Mixture:		7.898	36.444	100.00%		

Bloom Period	Wildflowers Used in Mixture	% PLS Seeding Rate of Mix
1 = April to May	7	11.03%
2 = June to July	28	42.92%
3 = August to October	19	23.74%
Total :	54	

4.44	Pollinator Value (0-5)
<i>The Pollinator value score is determined based on a combination of factors described below. A score greater than 4.0 indicates the mixture is designed for great pollinator value.</i>	

The Pollinator Value Score is determined based on a combination of factors that include:

The pollen and/or nectar value of the plant species.

The ability of the plant species to establish and persist in pollinator seeding mixtures. Bee Integrated Program research results of pollinator pollen analysis.

Unique pollinator biological life histories of the plant species. The total bloom period length of the plant species.

The occurrence in early bloom periods (Bloom Period 1) that are hard to challenging to provide resources for. The commercial availability of the species for use in seeding mixtures.

Value of the plant species pollen and nectar to commercial beekeepers. USGS Pollinator Library tool: <https://www.npwrc.usgs.gov/pollinator/home>

The Ecoregional Revegetation Application tool: <http://www.nativevegetation.org/era/>

Materials that list the pollinator value of species.

Field observations of floral resource use by pollinator species.