

Supplementary Materials

Table S1. Abundance of soil PLFA biomarkers by site with growing season and seed mix treatment interactions. Growing seasons followed by the same upper-case letter are not significantly different at $P < 0.05$. Pairs of values of the seed mix treatment within a site followed by the same lower-case letter is not significantly different at $P < 0.05$.

			Total microbial biomass		Total fungal biomass		Total bacterial biomass		Arbuscular mycorrhizal fungi	Gram-negative bacteria		Gram-positive bacteria		Saprophytic fungi		Actinomycetes		Fungi: bacteria ratio		
Joyce Hill	GS 2 (2016)	Native Light	139.5	A	48.8	A	88.2	bc	8.76	a	27.8	NS	43.7	bc	40	NS	12.31	ab	0.55	a
		Native Heavy	107.2	A	43.3	A	61.8	ab	15.52	ab	17.7	NS	33.2	bc	27.5	NS	7.77	ab	0.70	ab
		Traditional	114.4	A	46.6	A	65.1	abc	14.07	ab	19.7	NS	33	bc	32.1	NS	9.07	abc	0.72	abc
	GS 4 (2018)	Native Light	106.4	A	48.1	A	56.3	ab	18.92	ab	31.4	NS	14.8	a	29.2	NS	8.02	ab	0.87	abc
		Native Heavy	118.1	A	43.9	A	72.4	abc	11.78	ab	33.2	NS	23.4	ab	31.9	NS	12.47	abc	0.61	a
		Traditional	94.7	A	45.7	A	46.9	a	22	ab	26	NS	12.9	a	22.9	NS	5.96	a	0.98	bc
	GS 5 (2019)	Native Light	246.9	B	122.9	B	117.6	c	67.29	c	37.9	NS	57.2	c	55.4	NS	16.33	c	1.05	c
		Native Heavy	182.5	B	87.1	B	89.1	bc	24.8	b	28.8	NS	43.5	c	61.9	NS	11.9	abc	0.99	bc
		Traditional	142.5	B	58.5	B	80.2	bc	22.08	ab	26.5	NS	38.1	bc	36.2	NS	11.14	bc	0.73	abc
Middleton Run	GS 2 (2016)	Native Light	99.6	a	48.4	AB	50.6	NS	14.3	A a	17.9	NS	21.3	A	33.9	ab	8.55	a	0.99	NS
		Native Heavy	157.4	b	77	B	78.1	NS	21.5	b	27.3	NS	32.2	A	55.2	b	14.19	b	0.99	NS
		Traditional	84.7	a	42.6	A	40.6	NS	9.3	c	12.8	NS	20	A	32.6	a	5.25	a	1.05	NS
	GS 4 (2018)	Native Light	119.8	a	63.4	AB	56.3	NS	25.3	A a	26.4	NS	18.2	A	38.1	ab	9.23	a	1.16	NS
		Native Heavy	136.9	b	68.6	B	66.6	NS	24.4	b	32.3	NS	20.5	A	44	b	11.56	b	1.03	NS
		Traditional	116.1	a	48.8	A	66.7	NS	16.1	c	34.2	NS	20.3	A	32.6	a	8.9	a	0.75	NS
	GS 5 (2019)	Native Light	150.5	a	76.1	AB	70	NS	36.8	B a	22.1	NS	34.4	B	40	ab	10.64	a	1.08	NS
		Native Heavy	180.5	b	95.4	B	80.3	NS	42.9	b	26.1	NS	37.1	B	51.5	b	12.65	b	1.20	NS
		Traditional	153.7	a	66	A	87.8	NS	25.6	c	28.4	NS	41.9	B	40.4	a	12.49	a	0.78	NS
Rose Valley	GS 2 (2016)	Native Light	130	A a	53.5	A a	76	NS	17.9	ab	26.7	NS	33.6	A	35.5	a	11	ab	0.70	abcd
		Native Heavy	236	b	111	b	126.1	NS	35.3	b	44	NS	54	A	75.2	b	18.7	abcd	0.89	cde
		Traditional	174	a	64.9	a	109.2	NS	16.7	ab	38.6	NS	49	A	48.2	a	14.5	a c	0.59	ab
	GS 4 (2018)	Native Light	176	A a	80.6	A a	92.7	NS	31.2	b	44.7	NS	28.9	B	49.4	a	14.4	abcd	0.87	bcde
		Native Heavy	235	b	101.5	b	136	NS	26.2	ab	61.5	NS	43.9	B	74.9	b	21.9	abcd	0.74	abcd
		Traditional	127	a	45.1	a	80.3	NS	10.6	a	36.9	NS	25.2	B	34.5	a	14.3	abcd	0.56	a
	GS 5	Native Light	238	B a	129.9	B a	105.6	NS	68	c	34.3	NS	49.4	C	61.7	a	15	cd	1.24	e

(20 19)	Native Heavy	299	b	141	b	154.6	NS	71	c	51.4	NS	72.7	C	68.8	b	21.9	abcd	0.92	de	
	Traditional	256			a	94.3	a	157.2	NS	30.2	b	55	NS	69.3	C	64.1	a	24.8	b d	0.60

Table S2. Phosphorus concentrations (ppm) by site and growing season interaction and by site and seed mix treatment interaction. Values are estimated marginal means with one standard error in parentheses. Šidák-adjusted comparisons were made among estimated marginal means. Growing seasons followed by the same upper-case letter are not significantly different at $P < 0.05$. Pairs of values of the seed mix treatment within a site followed by the same lower-case letter is not significantly different at $P < 0.05$.

Site/Growing Season or Seed Mix	GS2 (2016)	GS 6 (2020)	Native Light	Native Heavy	Traditional
Joyce Hill B	8.68 (1.12) a	6.49 (0.84) a	8.68 (1.37) a	7.18 (1.13) a	6.78 (1.07) a
Middleton Run A	32.45 (4.18) a	15.38 (1.98) b	16.01 (2.52) b	21.09 (3.33) ab	33.02 (5.21) a
Rose Valley C	10.94 (1.41) a	1.30 (0.17) b	2.89 (0.48) a	3.67 (0.61) a	5.05 (0.84) a

Table S3. Magnesium concentrations (ppm) by site and growing season interaction and by site and seed mix treatment interaction. Values are estimated marginal means with one standard error in parentheses. Šidák-adjusted comparisons were made among estimated marginal means. Growing seasons followed by the same upper-case letter are not significantly different at $P < 0.05$. Pairs of values of the seed mix treatment within a site followed by the same lower-case letter is not significantly different at $P < 0.05$.

Site/Growing Season or Seed Mix	GS2 (2016)	GS 6 (2020)	Native Light	Native Heavy	Traditional
Joyce Hill A	520 (26.4) a	505 (25.6) a	442 (27.6) b	546 ± 34.1 ab	556 (34.7) a
Middleton Run B	495 (25.1) a	360 (18.2) b	475 (29.7) a	429 ± 26.8 ab	368 (23.0) b
Rose Valley A	533 (27.0) a	443 (22.5) b	483 (34.4) a	442 ± 31.4 a	537 (38.2) a

Table S4. Calcium concentrations (ppm) by site and growing season interaction and by site and seed mix treatment interaction. Values are estimated marginal means with one standard error in parentheses. Šidák-adjusted comparisons were made among estimated marginal means. Growing seasons followed by the same upper-case letter are not significantly different at $P < 0.05$. Pairs of values of the seed mix treatment within a site followed by the same lower-case letter is not significantly different at $P < 0.05$.

Site/Growing Season or Seed Mix	GS2 (2016)	GS 6 (2020)	Native Light	Native Heavy	Traditional
Joyce Hill B	1641 (76.0) a	1743 (80.7) a	1338 (78.5) b	1812 (102.8) a	1930 (109.5) a
Middleton Run C	1027 (47.6) a	758 (35.1) b	913 (51.8) a	867 (49.2) a	868 (49.2) a
Rose Valley A	8136 (376.9) a	4144 (192.0) b	5673 (333.2) a	6052 (355.5) a	5703 (335.0) a

Table S5. Suggested high diversity native mix for reclaimed land. This mix is designed to support local pollinators or other wildlife with a diverse flowering population (including varied colors and flower shapes) blooming through most of the growing season, with a comparable cost as traditional seeding. Costs are based on prices from Ernst Seed Company, Meadville, PA.

COMMON NAME	SCIENTIFIC NAME	% OF MIX	COST/LB	COST IN 1 lb OF MIX
Switchgrass	<i>Panicum virgatum</i>	16%	\$5.50	\$0.88
Indiangrass	<i>Sorghastrum nutans</i>	14%	\$17.60	\$2.46
Orchardgrass	<i>Dactylis glomerata</i>	9%	\$3.30	\$0.30
Perennial Ryegrass	<i>Lolium perenne</i>	9%	\$1.93	\$0.17
Browneyed Susan	<i>Rudbeckia triloba</i>	2.50%	\$52.80	\$1.32
Maximilian's Sunflower	<i>Helianthus maximiliani</i>	0.75%	\$39.60	\$0.30
Common Milkweed	<i>Asclepias syriaca</i>	0.75%	\$149.60	\$1.12
Birdsfoot Trefoil	<i>Lotus corniculatus</i>	5%	\$5.78	\$0.29
Partridge Pea	<i>Chamaecrista fasciculata</i>	18%	\$7.60	\$1.37
Plains Coreopsis	<i>Coreopsis tinctoria</i>	1.3%	\$17.60	\$0.23
Purple Prairie Clover	<i>Dalea purpurea</i>	1.5%	\$39.60	\$0.59
Bigleaf Mountain Mint	<i>Pycnanthemum muticum</i>	0.5%	\$220.00	\$1.10
Roundhead Lespedeza	<i>Lespedeza capitata</i>	1.5%	\$118.80	\$1.78
Pennsylvania Smartweed	<i>Polygonum pennsylvanicum</i> <i>/Persicaria pennsylvanica</i>	12.2%	\$13.20	\$1.61
Blue Vervain	<i>Verbena hastata</i>	3%	\$35.20	\$1.06
Wild Bergamot	<i>Monarda fistulosa</i>	1%	\$105.60	\$1.06
White Snakeroot	<i>Eupatorium rugosum</i>	0.5%	\$264.00	\$1.32
Purple Coneflower	<i>Echinacea purpurea</i>	3.5%	\$39.60	\$1.39
Totals		100.00%		\$18.34