Delani Miller
Senior Division Plant Sciences
Monarch Mitigation: What Soil Does Milkweed Germinate In The Best?

To develop a method for replacing milkweed in an impacted natural area, I conducted an experiment comparing germination rates of milkweed in meadow soil, yard soil, garden soil, and potting soil to determine the best way to grow milkweed plants. My hypothesis was that milkweed plants would germinate best in potting soil. To test this hypothesis, I collected milkweed seeds and soil from four sources (Meadow-Yard-Garden-Potting). I froze seeds for 7 days, then made 10 replicate cups for each soil type, planted 5 seeds in each cup, randomly arranged cups within each group of Meadow-Yard-Garden-Potting cups, watered each on the same schedule, and observed for germination and seedling survival. All soil types produced milkweed plants; all germination occurred between 8 and 13 days after planting. Only about 10% (22/200) of the seeds germinated (5 in Meadow, 8 in Yard, 2 in Garden, and 7 in Potting soil). Not all seedlings remained healthy and survived: 2 Yard and 2 Potting soil seedlings died, and 8 others appeared unhealthy. There were 7 healthy seedlings by the end of the study (4 Meadow, 2 Potting, and 1 Garden). “Fast” and “best” were not the same for milkweed seedling germination; although more seeds germinated in the Yard soil, the Meadow soil had the “best” germination because 4 of 5 seedlings were healthy. My original hypothesis was unsupported because Potting soil didn't sustain as many healthy germinated milkweed plants as Meadow soil. Apparently milkweed plants are more adapted to specific soil types than I assumed.