

ASIATIC DAYFLOWER SEEDLING EMERGENCE PATTERN IN ARTIFICIAL SEED BANKS.
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Asiatic dayflower (*Commelina communis* L.) has become a problematic weed for Iowa farmers in recent years. The adoption of glyphosate-resistant (GR) crops combined with reliance on glyphosate as the principal tool for weed control have contributed to the establishment of Asiatic dayflower in agricultural fields. Field and laboratory research conducted in the past demonstrated that glyphosate does not control Asiatic dayflower. However, such research has not focused on the ecological and biological aspects that have contributed to the adaptation of Asiatic dayflower in GR crop systems. The objective of this research was to study Asiatic dayflower emergence patterns under conditions that are similar to those found in agricultural fields. Asiatic dayflower seeds were collected from Osceola (O) and Vinton (V), Iowa, and classified as large (L) and small (S) seeds. Two artificial seed banks were established in November 2008 at the Curtiss and Agronomy farms, near Ames, IA. Each site consisted of 24 PVC pipes buried in the ground and refilled with soil. Seedling emergence time was recorded during 2009. At the Agronomy Farm, emergence ranged from the day of year (DOY) 122 through 184 DOY. In contrast, seedling emergence at the Curtiss Farm ranged from 114 through 171 DOY. Seedling emergence at the Agronomy Farm was 65%, 85%, 44% and 48% for OS, OL, VS and VL seeds, respectively. Emergence at the Curtiss Farm was 74%, 65%, 55% and 61% for OS, OL, VS and VL seeds, respectively. Overall, results showed that Asiatic dayflower emergence ranged from late April to the middle of July, and not all seeds in the artificial seed bank germinated. These results also suggest that microclimate conditions affect the emergence of Asiatic dayflower. The extended emergence pattern of Asiatic dayflower may be attributed to the dimorphic seeds.