DEPTH AND TIME OF ASIATIC DAYFLOWER EMERGENCE IN CORN. José M. Gómez and Micheal D.K. Owen, Graduate Research Assistant and Professor, Department of Agronomy, Iowa State University, Ames, IA 50011.

Natural seed banks have been studied extensively by researchers to gain a better understanding of how and when weed seed germination and seedling emergence occurs in crop fields. Asiatic dayflower (*Commelina communis* L.) is a difficult weed to control with glyphosate, and has become an increasing problem in glyphosate resistant soybeans. Research concerning biological factors of Asiatic dayflower has been meager. The objective of this research was to study the time and depth of Asiatic dayflower emergence under field conditions. Two studies were conducted in corn fields near Vinton and Osceola, IA in the summer 2008. Both fields were cultivated after planting. Asiatic dayflower germination was recorded from mid-June to the first week of August. No subsequent germination was observed during mid-August and September. In Vinton, the germination depth ranged from 0 to 9 cm, while in Osceola germination depth ranged from 0 to 7 cm. The average depth of Asiatic dayflower emergence for Vinton and Osceola was 2.21 and 2.54 cm, respectively. Two morphological characteristics were observed and will be of interest in further research. First, the apocole (cotyledonary limb) of Asiatic dayflower, although not a unique feature for this weed, contributed to the successful emergence of the seedling from deeper depths. The apocole connects the seed with the seedling, nourishing the growing seedling. Second, Asiatic dayflower produced large and small seeds in different proportions. The proportion of small seeds per plant ranged between 80 to 91%, while large seeds ranged between 8 to 13%. It is then hypothesized that Asiatic dayflower seed size variation could explain the extended emergence pattern due to a difference in dormancy levels, but further research needs to be done.

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