

# **Pollen limits seed set in small populations of feral *Miscanthus sinensis*, an ornamental grass with invasive potential**

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*Miscanthus sinensis* (Chinese silvergrass) is a tall, perennial, C4 grass native to Eastern Asia. Ornamental cultivars of *M. sinensis* are popular in Ohio and elsewhere, and may give rise to invasive populations. Naturalized (feral) populations already appear to be invasive in some areas of the southeastern US, with the potential to spread further, yet few studies have focused on the reproductive ecology of this non-clonal, self-incompatible species. My goal was to determine whether seed production of feral populations is limited by available pollen from nearby individuals. In late October 2014, I sampled flowering shoots from nine populations of varying size and population density in Ohio and West Virginia. Population size ranged from 5 to >200 and I sampled 20 individuals per population whenever possible. Population density was quantified as the number of plants per square meter in smaller populations, and as the average distance to the nearest 3 conspecific plants for each sampled individual in larger populations. I then x-rayed flowered shoots at the OSU Ornamental Germplasm Center to determine percent seed set for 300 florets per plant. Preliminary results show an increase in percent seed set as population size increases. Intriguingly, a small feral population in Columbus may have received pollen from a large, adjacent stand of ornamental plants, based on its relatively high seed set. In four large populations, individuals were divided into “center” and “edge” plants based on their locations in the population. Percent seed set was greater in “center” plants versus “edge” plants, which were farther apart on average. Overall, my results suggest that pollen-limited seed set was common. This finding supports the hypothesis that rates of invasion of *M. sinensis* may go through an initial “lag phase” until sufficient pollen is available to allow substantial seed production in newly established populations.