

## **1892 Preliminary estimates of pollen size, settling velocity and dispersal distance for *Amaranthus palmeri***

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Predictions of long-distance pollen dispersal require *a priori* knowledge regarding the size and shape of pollen grains. Our objectives were to (1) determine the mean size and settling velocity ( $V_s$ ) of mature *Amaranthus palmeri* (AMAPA) pollen grains, and (2) estimate the theoretical maximum flight distance for pollen grains. Pollen diameters of four AMAPA populations (FL, GA, NC, TN) ranged from 20-38 $\mu$ m. Assuming a mean diameter of 28.4 $\mu$ m, we determined that the theoretical  $V_s$  of AMAPA pollen grains to be 2.9-3.9cm/s. Results from laboratory studies suggest that the mean  $V_s$  is 5.0cm/s. The theoretical value for  $V_s$  was established using an equation that assumes particles maintain a constant shape, size and density. In reality, AMAPA pollen grains lose water and become more dense over time. Assuming that pollen flight is unimpeded, AMAPA pollen carried by convective mixing to a height of 3500m could travel between 300-500km with a wind moving 4.5m/s.