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Effect of Seed Density on Dispersal of Seeds from Wet Splash Cup Plants KELSY BRYSON, EMILY SAWICKY, RACHEL PEPPER, University of Puget Sound — Splash cup plants use raindrops to disperse their seeds. Plants are approximately 4-30cm tall with ˜5mm-diameter fruit bodies. When raindrops fall into their conical fruit bodies, the splash ejects the seeds up to 1 m away from the parent plant. Understanding how the seeds are projected may enable a deeper understanding of dispersal after drop impact in other contexts and of splash cup plant evolution. Previous work using 3D printed cones as fruit body mimics found that maximum dispersal occurs with a 40° cone angle, defined as the angle between the side of the cone and the horizontal. Later work found that seeds, which were not accounted for in the original study, decrease dispersal distance. Seed density has also been found to correlate inversely with the average dispersal distance of seeds projected from a dry cup. In this study, we investigate the effect of seed density on dispersal from a cup that contains both seeds and water since this situation is commonly found in nature after one splash has occurred. We use 3D printed cones, a low-density polyethylene seed mimic, a high-density glass seed mimic, and high-speed video to analyze the splash. Our results show that lighter seeds travel further than heavier seeds, and the optimal cone angle remains 40° for both densities.

Connor Kelsy
University of Puget Sound

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