

Spray Drones Prove Effective for Crabgrass Management in Turf



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Weed Science Society of America (<https://www.cambridge.org/core/blog/author/weed-science-society-of-america/>)

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Until now, not much was known about the influence that nozzle type and application volume have on weed control efficacy with remotely piloted aerial application systems (RPAASs). However, new research shows that RPAAS applications using low-drift nozzles at low spray volumes (1.0–1.5 gallons/acre) can achieve weed control levels comparable to ground sprayer applications at 10 gallons/acre in turf. That's a key conclusion from a recently published research article in *Weed Technology* (<https://www.cambridge.org/core/journals/weed-technology>), a journal of the Weed Science Society of America (WSSA).

“With these research results, we can now provide turfgrass managers with some valuable

guidelines on how to effectively manage weeds with remotely controlled, aerial drone spray technology using drift-reduction nozzles and low spray volumes,” says Muthukumar Bagavathiannan, Ph.D., a WSSA member-scientist, Texas A&M University agronomy professor, and senior corresponding author for the study. “Overall, we found that RPAAS can be effectively used for site-specific herbicide applications in turf.”

Researchers conducted this study during 2022 at two College Station, Texas, sites, and Augusto Costa, Ph.D., a researcher with the Brazilian Agricultural Research Corporation (Embrapa Algodão, Campina Grande), contributed as the study’s first and co-corresponding author. Daniel Martin Ph.D., USDA-ARS, College Station, TX, provided aerial application technology collaboration in this research, along with other contributing researchers. The treatments included three, flat-fan nozzle-type combinations – extended range, drift guard, and air induction – and two, low spray volumes, applied with a single-nozzle RPAAS. A pressurized four-nozzle boom backpack sprayer served as a check for comparison.

“Applications using the RPAAS with the drift guard and air induction nozzles at low application volumes provided similar weed control levels as from the backpack sprayer at relatively higher volume applications,” says Bagavathiannan. “As a result, we determined that RPAAS can work effectively for site-specific herbicide applications in turf.”

More information about aerial application methods and turfgrass weed control can be found in the article, [“Nozzle type and spray volume effects on site-specific herbicide application in turfgrass using a remotely piloted aerial application system \(https://doi.org/10.1017/wet.2025.15\).”](https://doi.org/10.1017/wet.2025.15) The article is among several 2025 research articles newly accessible from *Weed Technology*, a [Weed Science Society of America \(https://www.cambridge.org/core/societies/weed-science-society-of-america\)](https://www.cambridge.org/core/societies/weed-science-society-of-america) journal, published online by Cambridge University Press.

About *Weed Technology*

Weed Technology is a journal of the Weed Science Society of America, a nonprofit scientific society focused on weeds and their environmental impact. *Weed Technology* publishes original research and scholarship in the form of peer-reviewed articles focused on

understanding how weeds are managed. The journal focuses on applied aspects concerning weed management in agricultural systems, weed/crop management systems, new weed problems, new technologies for weed management, herbicides used to manage undesired vegetation, and special articles emphasizing technology transfer to improve weed control. To learn more, visit www.wssa.net (<https://www.wssa.net>).

Featured Image: Researchers at College Station, Texas, have shown that spray drones can effectively control crabgrass in turf using low-drift nozzles at low spray volumes. Photo by Ubaldo Torres, Texas A&M University.

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