

Chemical control of torpedograss and common reed under altered salinity conditions

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Environmental conditions, such as salinity, flooding, and drought, can affect morphological and physiological features of plants, including leaf traits, biomass allocation, and growth rate. Changes in these features can impact herbicide absorption and translocation. This may present management challenges for species that grow in a variety of environmental conditions, such as torpedograss (*Panicum repens* L.) and common reed [*Phragmites australis* (Cav.) Trin ex. Steud]. To understand how salinity affects herbicide efficacy, plants of each species were grown in freshwater (0.7 ppt) or saline (15 ppt) conditions in a greenhouse and evaluated for growth characteristics after 2 wk. Torpedograss showed reductions in height, leaf number, stem number, biomass, and growth rate under high-salinity conditions. Common reed stem numbers were lower under freshwater conditions, but no other differences were observed. Plants were then treated with either imazapyr (0.14, 0.28, 0.56, and 1.12 kg ae ha⁻¹) or glyphosate (0.56, 1.12, 2.24, and 4.48 kg ae ha⁻¹) (four replications per treatment, plus a nontreated control, per salinity regime). Injury and aboveground biomass were measured 30 days after treatment (DAT), and above- and belowground biomass 60 DAT. Saline conditions reduced glyphosate and imazapyr efficacy on torpedograss, likely due to plant responses to salinity such as lower leaf number, leaf area, and growth rate. Observed differences in injury and biomass were more pronounced at the lower herbicide application rates, particularly for plants treated with glyphosate. The effects of salinity on herbicide efficacy for common reed were not significant.