

Journal of Aquatic Plant Management – Volume 57, July 2019

Integrated management of giant salvinia using herbicides and the salvinia weevil.

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Despite the use of aquatic herbicides and release of the biological control agent salvinia weevil (*Cyrtobagous salviniae* Calder and Sands; Coleoptera: Curculionidae), giant salvinia (*Salvinia molesta* Mitchell) continues to hinder waterways in the Gulf Coast region of the United States. Outdoor mesocosm trials were conducted in April and August of 2016 to determine the compatibility of salvinia weevil and aquatic herbicides by testing efficacy of each alone or in combination. The results from the whole tank data confirmed that the most widely used herbicide treatment in Louisiana, glyphosate + diquat, is efficacious against giant salvinia when used alone, regardless of application timing at 6 wk after treatment. Penoxsulam and flumioxazin reduced plant biomass, but efficacy varied depending on the timing of the application in whole-tank data. All integrated treatments suppressed plant growth and provided similar control to herbicide-only treatments for the early season (April) application. The timing data for the late-season (August) herbicide application provided evidence that the mixture of glyphosate and diquat is less efficacious than penoxsulam or flumioxazin when used as an integrated pest management approach. Although weevils alone were effective against giant salvinia, this research suggests that incorporating herbicides and weevils into a giant salvinia management program is more beneficial than biological control alone, particularly in central and north Louisiana. Plant managers should consider treating giant salvinia with herbicides early in the growing season, either coupled with weevils or alone.