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Chemical Control of Weeds and Genetic Off-Types in Smooth Cordgrass (*Spartina alterniflora*) Production Ponds

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Major efforts to reduce rates of land loss are needed to preserve Louisiana's coastal wetlands. Louisiana has 40% of the wetlands found in the lower 48 states (Bourne 2000). However, Louisiana has the highest wetland loss rate in the continental United States; from 1956 to 2006 Louisiana's wetland loss ranged from 1,640 to 10,170 ha per year (Barras et al. 2008). The financial impact of Louisiana's wetland loss is estimated to be \$37 billion, which includes impacts to fisheries, wildlife habitat, flood control, and hurricane protection (Bourne 2000).

To reduce coastal erosion, smooth cordgrass (*Spartina alterniflora*) is commonly used in restoration projects throughout Louisiana. Smooth cordgrass is the most prevalent plant of Louisiana's coastal wetlands (Godfrey and Wooten 1979, Broome et al. 1986). It rapidly produces dense growth along intertidal areas (Bush and Houck 2008), accumulates sediment and organic matter to build land (Redfield 1972, Nepf 1999), and reduces wave energy, scouring, and flooding of inland communities (Redfield 1972, Christiansen et al. 2000). Sediments trapped by smooth cordgrass contain nutrients that benefit plants, fish, and crustaceans that comprise economically valuable fisheries of this region (Broome et al. 1986, Mitsch and Gosselink 2007). Smooth cordgrass also provides food and habitat for economically and ecologically valuable migratory birds traveling along the Mississippi and Central Flyways (Broome et al. 1986).

All smooth cordgrass varieties used for coastal restoration projects in Louisiana are clonal. To provide plant material for restoration projects, smooth cordgrass varieties are clonally propagated from rhizome segments that are attached to stems. Clonal propagation is extremely labor intensive and little science-based information exists on efficient and economical production of clonal smooth cordgrass varieties. Weed management is an essential component