



USDA-CSREES 2006 National Water Quality Conference

Early Results From Evaluation of Lagoons and Wetlands Designed to Improve Dairy Waste Effluent

The Lake Pontchartrain Basin is a 4,700 sq. mile estuarine ecosystem located on the Gulf coast. Land use ranges from urban/suburban to rural agriculture and forestry. Over the past several decades water quality has decreased due to a variety of insults. The economically important dairy industry in the basin has often been focused on as a major contributor. Currently effluent management consists of a single stage lagoon system with periodic pump-out and land application. This management technique is the best available but has its limits. Objectives include evaluating the environmental and cost effectiveness of secondary and tertiary treatment of dairy effluent using second stage aerobic lagoons and third stage wetlands. Results are exported to dairymen from Louisiana and Mississippi located in the north-basin using extension methods and a new program called Master Farmer. Methods include construction of experimental replicated lagoons and wetland systems for evaluation of effluent throughout the system. Nutrients, fecal coliform, sediment, and BOD are a few of the parameters monitored at various stages in the system. All pond sizes are designed to handle the average 14,000 gal/day effluent from the 200 cow test dairy. First stage treatment is replicated 156' x 93' x 9' anaerobic ponds analogous to systems currently in place in the industry. Second stage treatment is replicated 232' x 134' x 6' aerobic ponds and tertiary treatment is replicated 102' x 42' x 3' wetland cells. Early results indicate significant reductions in selected parameters as the effluent moves from first stage treatment to tertiary treatment, although the significance is questionable with in some of the controls verses treatments within the wetlands at this time. A handout with a more complete summary of the data collected so far is available during the poster session.

Author: Brian D. LeBlanc
Coauthor(s): Vinicus R. Moreria

