LAKE OKEECHOBEE WATERSHED DAIRY BEST AVAILABLE TECHNOLOGIES PROJECT

Mandate:

Lake Okeechobee Watershed Protection Program (LOWPP)

Background:

Dairy BATs projects were initiated in 2000 for the purpose of reducing and controlling TP concentrations in stormwater runoff from the high-nutrient pasture areas of dairy operations. An interagency project team selected edge-of-farm (EOF) stormwater treatment alternative to be implemented on three dairy properties in Lake Okeechobee watershed after careful review of feasible alternatives.

Project Overview:

The objective of the project is to identify, select and implement various technologies in order to significantly reduce TP discharge from dairy operations in the Lake Okeechobee watershed. Project Description/Features:

The projects consist of capturing the stormwater runoff on-site in retention/detention ponds (especially from the nutrient rich pasture areas), reusing the runoff for current operations if possible and chemically treating the stormwater prior to its release, if offsite discharge is necessary. Four dairy BATs projects were implemented and the final operational results are summarized below;

EOF treatment site	Annual P load from surface runoff (lb)	Total load reduction since operation (lb)	Years of operation	Average annual reduction (lb)	Annual reduction due to retention (lb)	Annual reduction due to treatment (lb)	**Average annual reduction (mt)**	Overall efficiency (%)
Butler Oaks	4,449	13,439	3.8	3,555	2,965	586	1.62	80%
Dry Lake	4,212	10,536	3.8	2,787	2,511	275	1.27	66%
Davie Dairy	4,594	1,713	4.2	412	3	409	0.19	9%
Milking R	3,527	3,527	1.0	3,527	3,527	-	1.60	100%

While the P load reductions varied between 66-100% for the last three sites, Davie Dairy operations indicated a 9% P reduction rate due to challenging equipment failures and inefficient chemical flocculation.

Project Status:

The Davie Dairy system has been retrofitted with the Hybrid Wetland Chemical Treatment Technology (HWTT) to increase the P reduction efficiency. Dry Lake Dairy has been sold and is now called Hudson Lakes Ranchettes. This new development will include an urban stormwater treatment system to provide additional load reductions due to the termination of the on-site chemical treatment system. The Butler Oaks and Milking R systems are under storm event monitoring programs.