

PROJECT CLOSE OUT

FY96 Section 319 Grant Program

DEMONSTRATION OF EFFICIENT NUTRIENT USE THROUGH IMPROVED GRAZING TECHNIQUES

EPA Grant Number: C9994515-96

Work Plan Project Number: Project C4

Project Period: March 24, 1997 to March 16, 1999

DEP Contract Number: WM660

Contractor: Okeechobee Soil and Water Conservation District

Submitted by: FDEP, Stormwater/Nonpoint Source Management Section

Project Summary:

The project is located within the Kissimmee River Basin. Okeechobee High School hosted this educational project, using an existing 18-acre field with a 2 acre wet detention pond located in the center. The field was divided into 12 paddocks for livestock rotation, with watering facilities in each one. Livestock were rotated on a two-day rotation.

This project demonstrated that improved grazing techniques on the Okeechobee High School Agriculture Farm could minimize runoff of nutrients into an existing two-acre pond located at the school. Comparison of before and after grazing systems demonstrated the benefits of implementing the project's Best Management Practices (BMPs). The BMPs included fencing, solar power livestock water troughs, and rotational grazing. Measurement of water quality in the pond at regular intervals by the students identified changes during the project and also educated the students in water quality testing methods. A total of 247 students participated from the Agriculture and Environmental Science Programs.

This project demonstrated to students and ranchers that improved grazing techniques, in combination with other BMPs, can;

1. distribute nutrients more efficiently for plant uptake than traditional grazing techniques,
2. better match fertilizer application rates with plant needs for growth,
3. minimize nutrient runoff, demonstrate the cost effectiveness of efficiently managing smaller tracts of land, and
4. improve the harvest efficiency of forage plants in comparison to conventional grazing methods.

The project demonstrated to students how to properly manage pastureland and improve water quality. The BMPs, together with increasing the stocking rate 2.5 to five fold over traditional systems, demonstrated how to encourage livestock to harvest all of the forage in a paddock instead of selectively grazing the area.

The demonstration of rotational grazing showed students and area farmers how to avoid High Intensity Areas (HIA) by using a short grazing period and a long plant recovery period. The frequent rotation also demonstrated how manure/nutrients can be evenly distributed over the paddocks. By excluding the livestock from wetlands and ditches with fencing, the BMPs improved herd health by

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providing high quality ground water to the livestock and lessening exposure to parasitic organisms commonly found in surface water.

Comparisons of the two grazing methods were made and reported by the students on the following areas: animal consumption (percentage of vegetation remaining after grazing), grazing distribution/uniformity, forage quality, soil fertility, and animal performance. Students analyzed the cost and benefit of each system to determine the feasibility of the grazing systems. A field day was held to demonstrate the finding of the project to the public and the ranching community. Thirty-four persons attended the field day.

Section 319(h) funding was used to install the infrastructure and equipment necessary for this project, and to provide for printing and distribution of educational materials. Monitoring expenses were provided by the South Florida Water Management District and the school, and this activity will continue. This project will continue indefinitely, to educate students in the agricultural and environmental aspects of nonpoint source pollution from grazing and other activities.

Outputs:

1. Final Report "A Demonstration of Efficient Nutrient Use Through Improved Grazing Techniques".
2. 500 copies of a tri-fold brochure: "A Demonstration of Efficient Nutrient Use Through Improved Grazing Techniques".
3. 600 copies of a fact sheet: "Solar Powered Livestock Watering System".
4. 600 copies of a fact sheet: "Energized Fencing".

Equipment:

1. Sampling Catwalk.
2. Solar pump and panels, piping, and watering facilities.
3. Solar powered fencing, charger, and gates.
4. Corral fencing and shade structures.
5. Computer, monitor, and printer for data collection and display in classroom.
6. All equipment will be retained by Okeechobee High School for teaching future classes and interested ranchers about BMPs and their role in reducing nonpoint source pollution and protecting water quality.

Project Budget:

Grant Work Plan Budget
EPA Section 319 \$31,238
Matching Funds \$23,960

Actual Project Costs

EPA Section 319 \$30,910
Matching Funds \$26,313

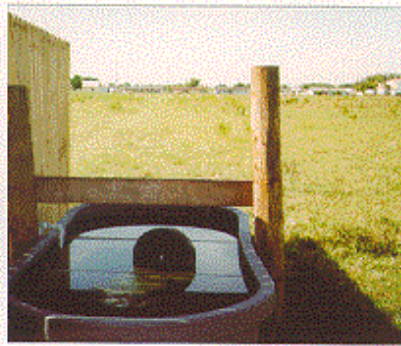
Special Conditions:

An excellent job of project management by the District Conservationist, Sam Sharpe. Delivered on time and budget despite serious weather related difficulties at the beginning of the project. A special note of thanks is due the teachers of Okeechobee High School and the staff of the South Florida Water Management District for their efforts.

Images:



Solar powered water system



Water trough



Roof runoff management



Installation of pipe extension for roof



Securing pipe for roof runoff



Ground breaking

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Water Quality sampling at site 5



Water Quality sampling at site 1



Hands on teaching



Livestock grazing -shot across paddocks



Livestock shade structure in use



Bubba wants in the picture.

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