

A Meta-Analytical Approach for Determining the Effectiveness of Agricultural Best Management Practices for Reducing Nutrient Pollution in Florida, Phase 2: Meta-Analysis of Cow/Calf Operations, Vegetable Crops, and Agronomic Crops

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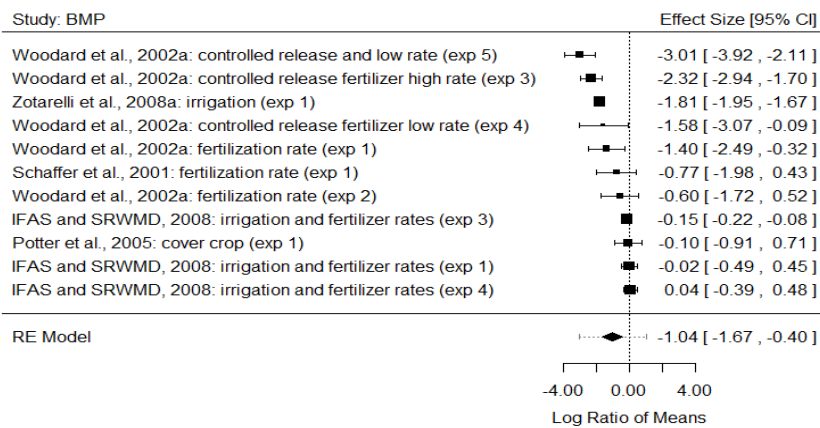
Client: Florida Department of Agriculture and Consumer Services

Project Summary

The Florida Department of Agriculture and Consumer Services (FDACS), Office of Agricultural Water Policy (OAWP), contracted with Frydenborg EcoLogic to conduct a meta-analysis of over 300 publications that contained information on Florida-specific agricultural BMPs. Frydenborg EcoLogic synthesized the quantitative evidence associated with the effectiveness of the DACS agricultural BMPs for reducing nutrients from agricultural operations to off-site environmental media (soils, groundwater, and surface water) in Florida. The meta-analysis demonstrated that there were no statistically significant BMP effects for either nitrogen or phosphorus for the cow/calf operations, likely due to the small number of studies included (four) and relatively low absolute value of nutrients associated with cow/calf operations. For agronomic crops, BMPs provided a statistically significant reduction in nitrogen (equivalent to an average of **60% reduction** compared to using no BMPs) but no significant reductions in phosphorus (there were only two agronomic studies that measured a phosphorus response). For vegetable crops, BMPs provided statistically significant reductions in both nitrogen and phosphorus (equivalent to average **reductions of 66% and 35%**, respectively), compared to using no BMPs.

Innovative Approach

Agronomic BMP non-aggregated effects on Nitrogen



Meta-analysis is a method for systematically combining pertinent data from studies meeting pre-determined inclusion criteria, generating conclusions with greater statistical power than the individual studies. This type of analysis had not previously been attempted for Florida agricultural BMPs.

Project Manager: Beck Frydenborg
 Data analysis and GIS: Beck Frydenborg
 Report: Russ Frydenborg, Beck Frydenborg

Contact: Bill Bartnick
William.Bartnick@freshfromflorida.com
 850-617-1705