

TCAA Research and Extension Planning Meeting

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### **Profit-maximizing phosphorus fertilization for commercial potato production**

*Abstract* Phosphorus (P) is a macronutrient element essential for potato growth and development. Due to its unique chemistry, P fertilizer applied to soil is vulnerable to be immobilized or run off in the northeast Florida where sandy soil dominates. Potato growers have to face thin profit margin and eutrophication challenges. To improve the profitability, growers want to get the maximum marketable yield via increasing fertilizer input. In practice, fertilization diminishes returns in tuber yield response to fertilizer P. Both fertilization and tuber yield obey an S-shaped curve. This project seeks to identify the optimum P rate for the profit-maximizing yield and to minimize potential eutrophication problems. This project will be conducted with seven different P rates in a range from 0 to 180 lb P<sub>2</sub>O<sub>5</sub> per acre with an increment of 30 lb P<sub>2</sub>O<sub>5</sub> per acre under identical growth condition with a seepage irrigation regime. The optimum P rate to be identified will be confirmed in another trial with the same settings in 2013 before any information is delivered to the local growers. This trial will be used for field days and demonstration.