Rice Production and Drainage Water Quality in the EAA

BMP-Water Detention
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Background

• Everglades Forever Act, mandates a 25% reduction of total phosphorus loads from the Everglades Agricultural Area (EAA) basin when compared to the pre-BMP.

• Effects of mandatory BMPs in the EAA have been studied for several years by Daroub et al., (2009) and P discharges have shown a decreasing trend from sugarcane farms.

• Discharges from mixed crop farms (Rice, Vegetables, etc.) have not shown a significant trend.

• Rice production has increased by more than
  • 70% since 2008.
Experimental Design

- Four water treatments.
- Two varieties: Cheniere, Taggart.
- Dry-seeding with 100 lbs/acre of iron sulfate.
- Field was flooded 20 days after planting.
Drainage Water Quality

Experimental field:
• Total phosphorus was reduced by 42% on average.

Commercial field:
• When water was cycles (23% reduction).
• When was not cycled (46% increase).
• Water quality was not affected by drawdown.
Rice Yields

- Grain yield was on average 4200 lbs/acre in both years.
- Shallow water depth and midseason drawdown did not show a negative effect on rice yield.
- Cheniere had significantly higher yields.
- Taggart variety produced significantly bigger stalks and grain compared to Cheniere in both years.

Average EAA rice yield (4140 lbs/acre)
## Conclusion

### Water Quality

- All water treatments reduced:
  - Total phosphorus by 42%
  - Total phosphorus in commercial field by 23%
- Due to Uptake and Seepage

### Rice Yields

- N, Mn, Zn, Cu, Fe and B were not sufficient
- Treatments did not significantly affect nutrient uptake and yields
- Yields: Cheniere > Taggart
- 4200 lbs/acre average yields
Thank You

Questions:
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