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Field Test Results (Rice)-2011

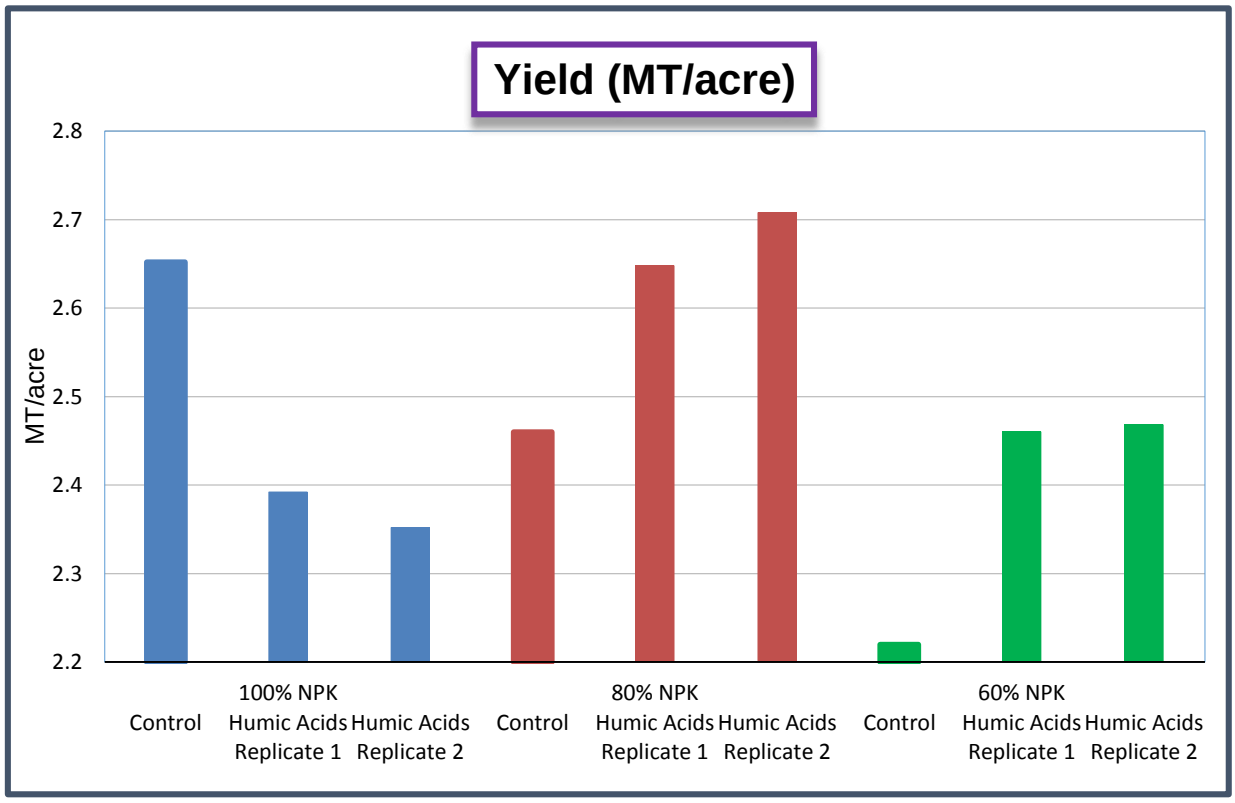
CHI Liquid Carbon Increased Crop Production of Rice

Objective:	*To use organic matter (humic acids) to increase the yield of rice*
Collaborator:	*Eco Tiger, Ho Chi Minh City & Cuu Long Rice Research Institute, Cantho, VIETNAM*
Period:	*August to November 2011*
Tested product:	*CHI-Powder and CHI-Soluble Powder (source of humic acids)*
Tested crop:	*Rice of OM 5451 (90-95 days) variety*
Location:	*Cantho area, VIETNAM*
Soil type:	*Alluvium, pH = 5.5, organic matter = 2.7%, total N = 0.2%, available P = 2.8 ppm (Olsen's), exchangeable potassium = 5.9 cmol/kg, CEC = 20.1 cmol/kg*
Test plots:	*5.5 x 6 m^2 each; separated with 1 m distance by 0.2 x 0.3 m^2 furrow drains*

Design of Experiments

- *Control 1: 100% NPK (88-35-26 lbs/acre)*
- *Treated 1-1: 100% NPK; 88 lbs/acre CHI-Powder; 0.36 lbs/acre CHI-Soluble Powder*
- *Treated 1-2: replication of Treated 1-1*

- *Control 2: 80% NPK (70-28-22 lbs/acre)*
- *Treated 2-1: 80% NPK; 88 lbs/acre CHI-Powder; 0.36 lbs/acre CHI-Soluble Powder*
- *Treated 2-2: replication of Treated 2-1*
- *Control 3: 60% (53-21-16 lbs/acre)*
- *Treated 3-1: 60% NPK; 88 lbs/acre CHI-Powder; 0.36 lbs/acre CHI-Soluble Powder*
- *Treated 3-2: replication of Treated 3-1*
- *NPK and CHI-Powder were applied before sowing; CHI-Soluble Powder was applied after sowing incrementally 3 x 0.12 lbs up to 55 days*
- *Control, Treated 1-1, 1-2, 2-1, 2-2, 3-1, and 3-2 was each completed in triplicates; yields were recorded and averaged*



Results

CHI-Powder, CHI-Soluble Powder, and 100% NPK resulted in lower yields compared to 100% NPK only, indicating that humic acids and nutrients at the applied rates were too much for the plants. At reduced nutrients, the addition of CHI-Powder and CHI-Soluble Powder significantly increased yields compared to controls (80% and 60% NPK only), suggesting that humic acids made nutrients more available to plants. The best overall results were observed with the addition of CHI-Powder and CHI-Soluble Powder to 80% NPK, in which yields were maintained and even slightly increased by 2% (from 2.65 to 2.71 MT/acre) compared to that of 100% NPK.

Conclusions

With the incorporation of CHI-Powder and CHI-Soluble Powder, the yield of rice could be maintained at 20% reduced nutrient inputs. Both products were practical, economical, and compatible with most nutrients.