

ENHANCING RICE MARKETS IN UGANDA THROUGH SMART MICRONUTRIENT FERTILIZATION (ENRICH)



Africa Innovations Institute

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Project Objectives

- Goal: Increase food and nutrition security and income of smallholder farmers producing lowland rice
- Main objective: Increase lowland rice productivity in Eastern and Northern Uganda through fine-tuning the composition of micro and macro-nutrient fertilizer combinations and their application mode for optimum rice yields and improved nutritional quality.
- Specific objectives:
 1. Understand the current situation and rice fertility challenges in the region.
 1. Evaluate and identify the appropriate composition and mode of application of micronutrients (SmartFert) for optimum yield of lowland rice
 2. Integrate and out-scale SmartFert into ongoing development programs and production practices.

Progress/Results

- Stakeholders' analysis and planning workshop conducted
 - All key stakeholders in rice value chain: researchers, farmers, input dealers, processors, traders and policy makers.
- Selection and training of farmers' research group (FRG) members done
 - All blocks within the irrigation scheme represented; 50% women
 - Roles and responsibilities/contribution
 - Trial evaluation
- FRG members involved in trial management and evaluation
 - Results of their evaluation to be analyzed for preferred fertilizer combinations and application methods

Progress/Results.....

- Field experiments: Doho & Kibimba rice irrigation schemes; Randomized Block Design (RBD), 4 replications

- Fertilizer rates:

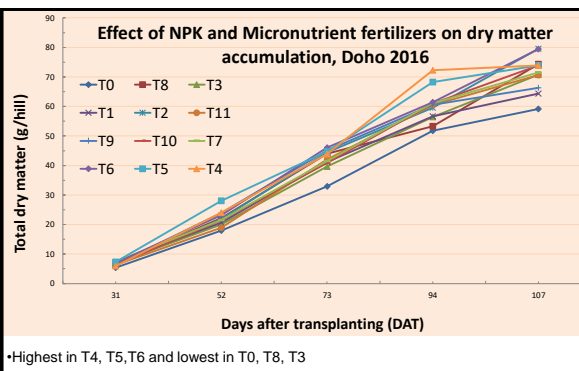
Fertilizer nutrient	Nutrient Rate (kg/ha)
Nitrogen (N)	80 (Urea)
Phosphorus (P)	40 (Triple super phosphate ,TSP)
Potassium (K)	40 (Muriate of potash, MoP)
Zinc (Zn)	5.8 (Zinc sulphate)
Manganese (Mn)	20 (Manganese sulphate)
Boron (B)	2 (Borax)
Sulphur (S)	14.7 (Sulphur dust)
Efert-F (Fe, Zn, Cu, Mn, B)	1.5

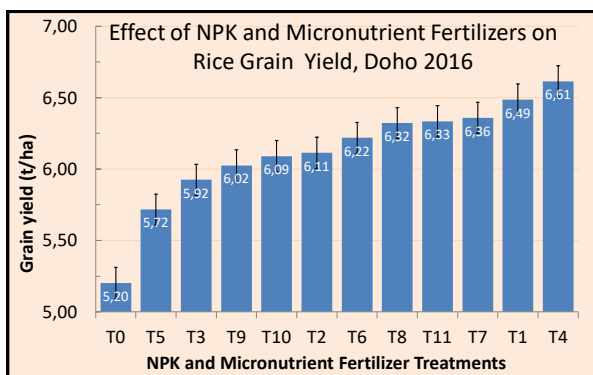
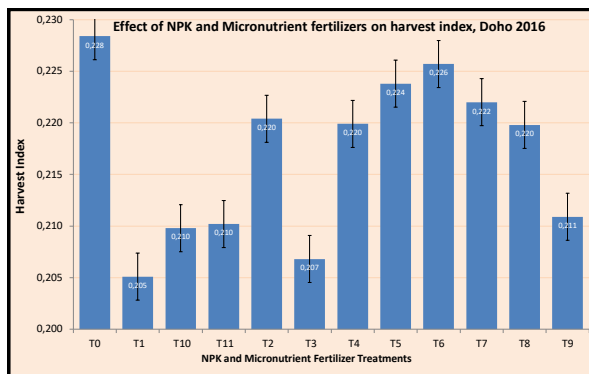
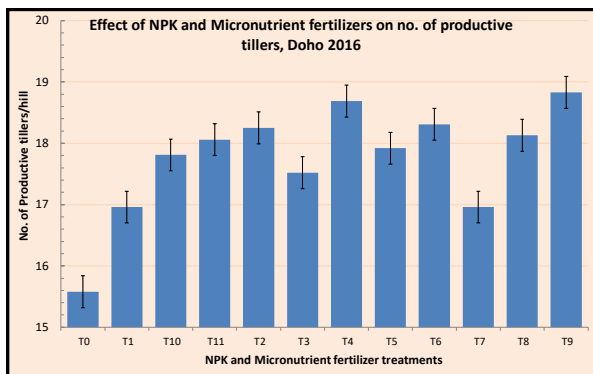
Treatment combinations

- T₀: Control (no fertilisation)
- T₁: NPK alone
- T₂: NPK + Zn, Mn, B, S soil applied
- T₃: NPK + Zn, Mn, B, S foliar applied
- T₄: NP + Zn, Mn, B, S soil applied
- T₅: NPK + Zn, Mn, S soil applied
- T₆: NPK + Zn, B, S soil applied
- T₇: NPK + Mn, B, S soil applied
- T₈: NPK + Zn, Mn, B soil applied
- T₉: NPK + Zn, Mn, B foliar applied
- T₁₀: NPK + commercial micronutrient fertilizer (Efert-F) soil applied
- T₁₁: NPK + Efert-F foliar applied

• Soil application: once as basal; N & K split in 3 at 50%, 25% and 25% applied 2 weeks after transplanting, at panicle initiation and at flowering, respectively.

• Foliar application: split into 3 at 40%, 30% and 30% at 4 weeks after transplanting, panicle initiation and at flowering, respectively.





Implication of the results:

- Addition of NPK + micronutrients increases rice yields by 1.16t/ha (≈ UGX 2,204,000 at current price of paddy at UGX 1800-2000/kg).
- Addition of NP + micronutrients increases rice yields by 1.41t/ha (≈ UGX 2,679,000)
- However, addition of micronutrients to NPK would only result to a yield increment of 0.12t/ha (≈ UGX 228,000)
- Under GAPs, farmers can get up to 5t/ha without fertilizer use



Thank you