

Kayuki Crammer Kaizzi¹, Hilary Rugema², Sven Goenster-Jordan³

¹Department of Soils, Environment and Agrometeorology, National Agricultural Research Organization, Entebbe, Uganda

²Grainpulse Ltd, Kampala, Uganda

³Research and Development Agriculture, K+S AG, Kassel, Germany

Introduction & Objectives

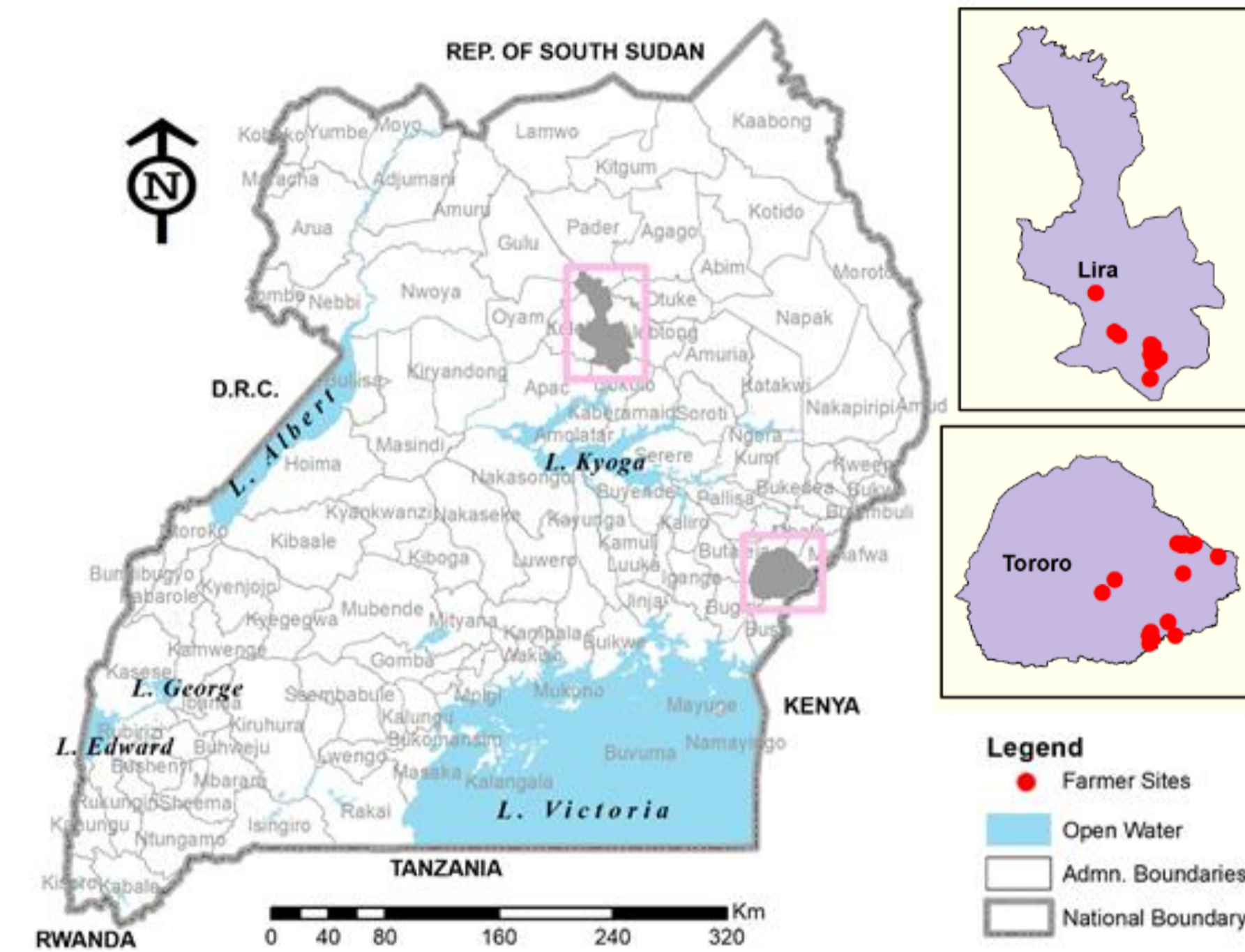
- Cassava is a major staple and food security crop for the rural and urban population in Uganda & an important raw material for industrial production processes.
- Cassava is considered to grow well on poor soils, to require no external inputs and to be grown as last crop in the rotation, so yields are usually low.
- Objectives:
 - ➔ To determine cassava response to N, P & K applications in different AEZs.
 - ➔ To develop cassava-specific fertilizers to increase yields in Uganda.

Conclusions

- Considerable potential to improve yields.
- Differences in responses between AEZs are small.
- N and K are the most limiting nutrients for cassava cultivation.

Materials & Methods

- Response trials (randomized complete block design) implemented in Lira (Northern Farmlands, 10 HH) and Tororo (Lake Victoria Crescent Zone, 12 HH).



- Planting 04/2021 (NAROCASS 1) & harvest 05/2022.

- Fertilizer application rates of:

- 0 – 100 kg N ha⁻¹
- 0 – 60 kg K ha⁻¹ + 60 kg N ha⁻¹
- 0 – 60 kg K ha⁻¹ + 60 kg N & 15 kg P ha⁻¹
- 0 – 30 kg P ha⁻¹ + 60 kg N & 24 kg K ha⁻¹

Results



N rate (kg/ha)	Yield (Mg/ha)		P rate (kg/ha)	Yield (Mg/ha)	
	Lira	Tororo		+60 kg N/ha +24 kg K/ha	Lira
0	9.4 ^c	11.3 ^c	0	31.1 ^b	40.9 ^a
20	23.5 ^b	21.6 ^b	7.5	37.0 ^a	36.0 ^{ab}
40	25.8 ^b	28.4 ^a	15	28.9 ^b	34.7 ^b
60	26.1 ^b	24.9 ^{ab}	22.5	41.2^a	37.3 ^{ab}
80	30.0^a	24 ^{ab}	30	40.3 ^a	41.3^a
100	30.0^a	30.2^a			

Yield ↑ up to +30%

Yield ↑ up to +220%

Yield ↓ at 7 & 15 kg P/ha

K rate (kg/ha)	Yield (Mg/ha)		K rate (kg/ha)	Yield (Mg/ha)	
	Lira	Tororo		+60 kg N/ha +15 kg P/ha	Lira
0	26.1 ^d	24.9 ^d	0	24.4 ^d	29.6 ^d
8	26.9 ^{cd}	31.6 ^{bcd}	8	34.6 ^{ab}	35.6 ^{cd}
16	25.8 ^b	29.1 ^{cd}	16	36.7^a	32.9 ^{cd}
24	40.0^a	40.9^a	24	28.8 ^{cd}	34.7 ^{cd}
32	32.1 ^{abc}	32.9 ^{bc}	32	31.5 ^{bc}	36.0 ^{bcd}
40	33.9 ^{ab}	36.7 ^{ab}	40	30.5 ^{bc}	44.0^a
48	34.0 ^{ab}	26.0 ^{abc}	48	28.6 ^{cd}	38.9 ^{abc}
60	34.0 ^{ab}	38.0 ^{ab}	60	36.7^a	42.9 ^{abc}

Yield ↑ up to +65%

Yield ↑ up to +50%