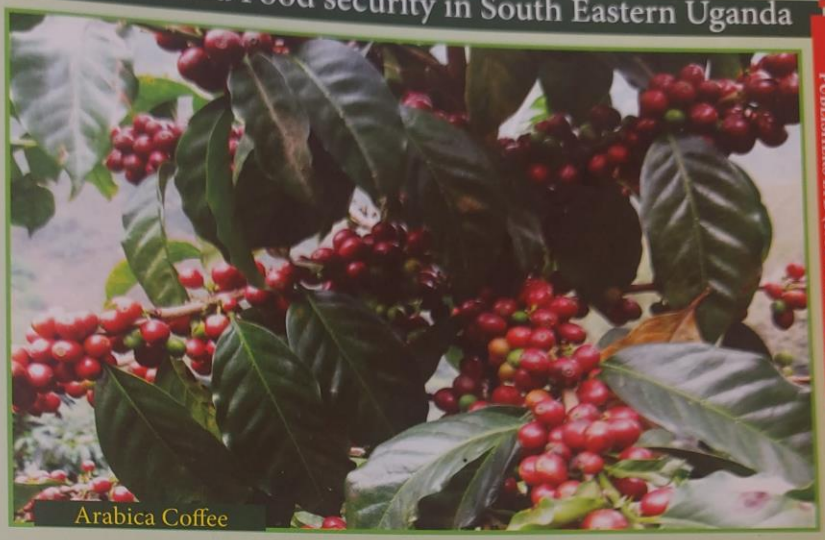
Buginyanya ZARDI:

Enhancing Nutrition, livelihoods and Food security in South Eastern Uganda





Arabica Coffee

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BACKGROUND:

Buginyanya Zonal Agricultural Research and Development institute (BugiZARDI) was operationalized by an act of parliament in 2008. It is one of the nine Public Agricultural Research Institutes mandated to conduct applied and adaptive agricultural research and promote improved agricultural technologies of key enterprises in the zone. BugiZARDI operates in Uganda's South Eastern Agro-ecological zone (U'SEAZ) comprising of Busoga, Bukedi, Bugisu and Sebei sub zones thus covering 27 districts. The head office is at Buginyanya in Masira, Bulambuli district also overseeing the high land enterprise research, development and promotion, Bulegeni for mid altitude enterprises and Ikulwe, Mayuge district for low land commodities and dairy whereas Mbale Fish Fry Centre for fisheries development, promotion and training. It operates in conjunction with several stakeholders along the commodity value chains and is supported by international agencies for particular research & development interventions. The research agenda is functionalized through the following three programs:-

CROPS AND NATURAL RESOURCES PROGRAM

Purpose of the Programme is to generate climate resilient agricultural interventions that spur sustainable food, nutrition & income security.

Interventions in Arabica coffee a key export commodity include the development of; high yielding coffee rust resistant hybrids (SL14, SL34, SL28, KP423), fungicide regimes for management of coffee rust and coffee berry disease, soil fertility systems that combine inorganic, organic and green manure to increase crop productivity. We have partnered and enhanced coffee yields in Mount Elgon with harvest 16.5 bags per ha for top producers while average producers harvest 7.5 bags per ha. Ugandan Arabica cup is described as Spicy, citrusy acid and good body with a light, earthy and even woody flavor.

Potato is critical in food security and livelihoods in the zone and supported through new high yield resilient potato varieties (Rwangume-Naropot4; Kinigi, Victoria) built capacity for early generation seed potato using advanced screen house systems (Rooted apical cuttings-RACs), ware and seed potato storage using both ambient (12weeks shelf life) and wooden stores (5weeks shelf life) and management regimes for late blight and bacterial wilt. These interventions have led to increased acreages and yields of 12t/ha higher than national average of 7t/ha.

Wheat and barley has been supported through release of three high yielding (3t/ha) rust resistant varieties suitable for confectionery industry (Elgon, Nyonyi and Sipi); developed two weed management regimes; fertilizer combinations for improved productivity of wheat and barley and currently developing wheat lines with high zinc and iron for improved nutrition. Two new high yielding (20 bags per acre) barley varieties (Barley T279 and Hessekwa) for the international brewing industry.

Maize productivity has been improved through first time release of two highland maize varieties in Uganda to replace the imported hybrids from Kenya. The released hybrids yield 8.2 t ha-1 and 7.2 t ha-1 for NAROMAIZE 731 and NAROMAIZE 733 and exhibited good agronomic qualities such as earlier maturity, tolerance to MLN and other diseases. The two varieties are appropriate for cultivation in



Fresh Mirrorcap Species

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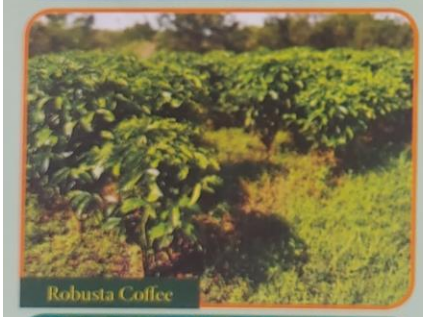
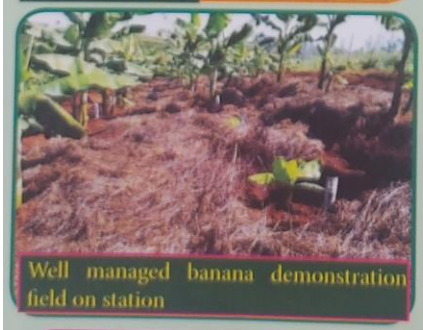
Screen house Production of early generation seed potato from rooted apical cuttings


Ambient ware potato store in Kween district


Improved Goat breeds


Robusta Coffee


Well managed banana demonstration field on station


Wheat

major highland and transitional maize growing regions in Uganda; developed lines with tolerance to maize lethal necrosis (MLN) and increased quality protein for enhanced human and animal nutrition, using biochar and including a novel technique for managing termites in maize fields. Together with regional partners, we have enhanced maize productivity (8t/ha) and supporting maize trade & processing throughout the zone.

Rice is industrialized through promotion of new Ugandan varieties, cost effective weed management regime using pre-emergence herbicide and hand weeding, strengthened the value chain to bulking and marketing with branding. Scientists have identifiedweed control bio-compounds from stover of NERICA 1, cymbapogon, mucuna, maize, currently developing a bio-herbicide applied as water extracts, mulches or intercrops in rice for management of striga and other weeds.

Field peas are great for nutrition and we are developing field pea varieties selected from country wide cultivars with high yields, better storability and yet packed with good nutrition alongside field pea management practices.

Soil and land management is the heart of agricultural productivity in the zone with critical interventions in promotion of soil water conservation practices especially the highlands; promoted conservation agricultural systems in the lowlands and improved access to agro-forestry tree species. These result into reduced vulnerability and increased resilience to climate change and its vagaries'.

Livestock resources improvement program

Improved household incomes and nutrition by providing goat breeds with faster growth and better meat quality dispensed through nucleus breeding systems in the zone; supported off season feeding with variety of pastures and pasture conservation techniques and treated internal parasites using conventional & bio-wormicides from locally available plant species. Increased nutrition has been achieved by introducing fast growing and adaptable cold tolerant water fish species such as mirror carp; producing & availing quality fish fry; developed cost effective fish feeds and supported the rehabilitation of fish ponds in the zone. Capacity building and production of quality and sufficient quantities of fish seed in the zone.

Technology Promotions and Outreach Program

The institute keeps abreast with the needs of the clientele through regular demand articulation using participatory approaches. It has introduced and increased mechanization in agriculture, improved post-harvest handing. We strive to create more linkages with partners and sustain effective partnerships including local community based organizations, international research agencies, universities and local governments. These are purposively selected based on the complimentary roles in strengthening commodity value chains including processing, marketing and commercialization. We support the general provision of quality planting materials and breeds of various crops and livestock across the zone. Community seed producers and merchants have been supported to produce quality seed of priority commodities as viable businesses while enhancing productivity & profitability in the zone. The Programme has also identified all zonal relevant agricultural technologies and innovations for upscaling and fast-tracking uptake and adoption. These have led to rise in household productivity two fold.

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