RESILIENT VEGETABLE VARIETIES FOR IMPROVED PRODUCTIVITY AND INCOME IN TANZANIA

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TECHNOLOGY/TOOL DESCRIPTION

- Promoting adoption of improved vegetable varieties in Babati and Karatu districts:
  - ✓ African nightshade (Nduruma),
  - ✓ Ethiopian mustard (Rungwe),
  - ✓ Amaranth (Madiira 1&2),
  - ✓ African eggplant (Teng. white),
  - ✓ Sweet pepper (Yolo wonder),
  - ✓ Tomato (Tanya, Teng. 97, Teng. 2010)
    - ✓ Tengeru 2010 - early maturing, tolerant to blight (*Phytophthora infestans),* high yielding.
- Coupled with improved management practices and good agronomic practices (GAP):
  - ✓ Good quality seed,
  - ✓ Healthy seed/seedling,
  - ✓ Proper spacing and field sanitization-timely weeding,
  - ✓ Raised bed,
  - ✓ Soul fertility augmentation with organic and inorganic fertilizers.

SIAF-BASED BENEFITS

- Increased yield: Fruit yield (Teng. 2010) was five times higher than the national average of 12,200 kg/ha and within the potential fruit yield for tomato of 40,000–90,000 kg/ha.
  - ✓ Healthy seedlings increased yield by 28%, and up to 128% when combined with GAP.
- Economic gain: New technologies combined with GAP can give twice more gross margins for tomatoes.
  - ✓ Cost-benefit ratios also higher than for farmer practices.
- Safe environment: less use of chemical fertilizer and pesticides.
  - ✓ Pesticide use reduced by 73%.

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EXTENT OF GENDERED CAPACITY BUILDING AND SCALING

- 2500 smallholder farmers have been reached with improved management technologies, GAP, and nutrition messages.
  - ✓ 40% women
- Training of government extension staff (15, 60% women).
- Farmer trainers 1,178 (47.5% women).
- Collaboration with Iles de Paix (IDP) for scaling, working with seven ToT (2 women).
  - ✓ *Mtandao wa Vikundi vya Wakulima* Tanzania (MVIWATA),
  - ✓ Research Community and Organizational Development Associates (RECODA).

LESSONS LEARNED

- Increased demand (local and international) for vegetables like tomato is an opportunity for farmers to increase production and income.
- Framers are more likely to invest in new technologies (IMP and GAP), build their market linkages, and improve their production and incomes sustainably.
- Farmers respond better to a business service approach than to methods that focus on production; they have showed interest in producing vegetable seeds for markets.
- Women farmers have benefitted from demo trial trainings and are in some cases getting better yields and have access to their income from vegetable sales.
- Growing vegetables in rotation or intercropping with other crops helps to benefit from the large, diverse population of soil organisms for good yield and improve livelihoods of farming especially for women farmers.
- Approach to partnership facilitates farmers to meet diverse needs/gaps at household level farming system.

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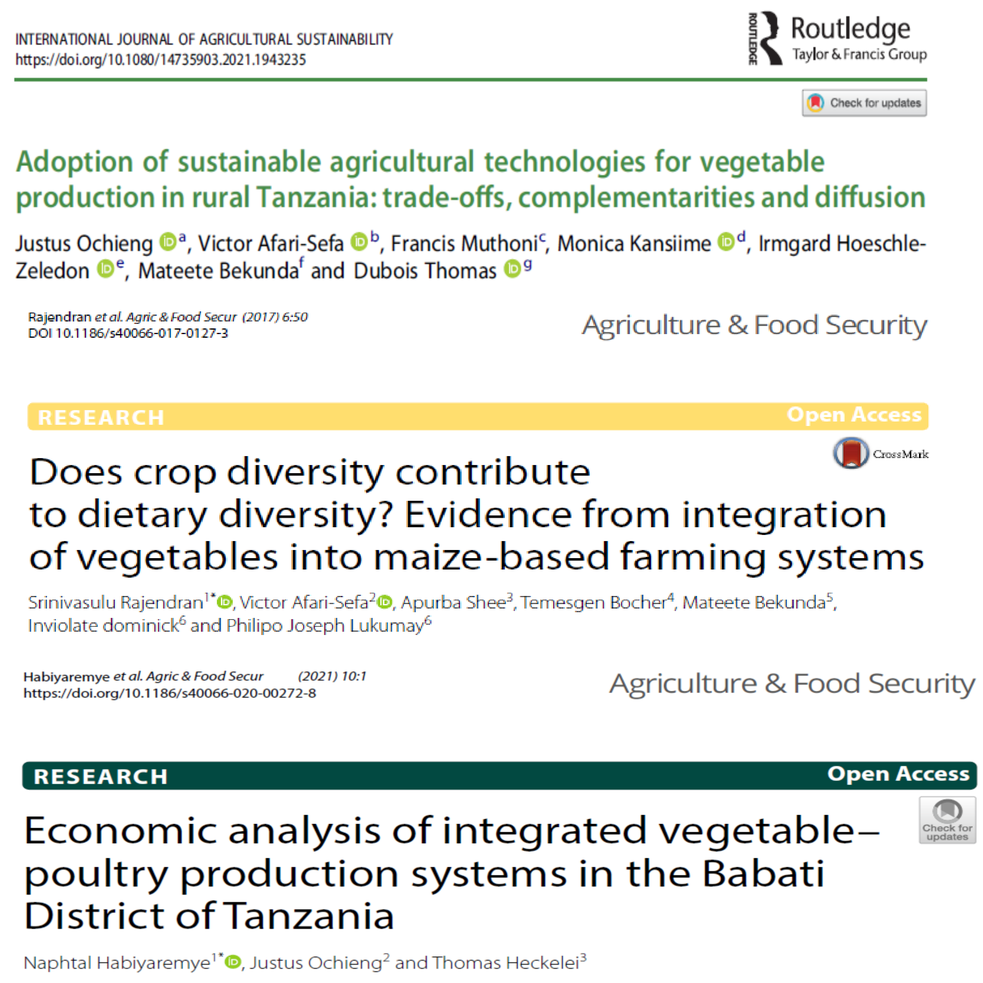
CHALLENGES AND GAPS

Pest and diseases	Low knowledge and poor perception about biopesticides including environmental hazards
Inappropriate use of pesticides	Leading to water pollution and damage to larger ecosystems, where excess nitrates from farm activities enter water systems.
Limited access to land and land-use rights	Limits farmers to practice some GAPs e.g., crop rotation, resulting to increase incidents of pests and soil degradation
Socioeconomic	High cost of farm inputs, poor quality seed from some traders
Biophysical	Drought, low soil fertility, lack of water for irrigation. The demand for water is rising and water scarcity is becoming acute, thus limiting the future expansion of irrigation
Diversification	Vegetable commodities are perishable, their markets are fragmented, high volatility in prices, and thus high market risk.

DELIVERABLES

- 8 publications:
  - ✓ Ochieng' etal. (2)
  - ✓ Srini etal.
  - ✓ Lazaro etal.
  - ✓ Habiyaremye etal. (2)
  - ✓ Gundulla etal.
  - ✓ Lukumay etal.
- Contributed to two book chapters – Bekunda etal.
- 5 Msc thesis:
  - ✓ 5 Msc graduates
- 1 abstract – Zekeya etal.
- Multiple success stories



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Adoption of sustainable agricultural technologies for vegetable production in rural Tanzania: trade-offs, complementarities and diffusion

Justus Ochieng[a], Victor Afari-Sefa[b], Francis Muthoni[c], Monica Kansiime[d], Irmgard Hoeschle-Zeledon[e], Mateete Bekunda[f] and Dubois Thomas[g]

Rajendran *et al. Agric & Food Secur (2017) 6:50*
DOI 10.1186/s40066-017-0127-3

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Does crop diversity contribute to dietary diversity? Evidence from integration of vegetables into maize-based farming systems

Srinivasulu Rajendran[1*], Victor Afari-Sefa[2], Apurba Shee[3], Temesgen Bocher[4], Mateete Bekunda[5], Inviolate dominick[6] and Philipo Joseph Lukumay[6]

Habiyaremye *et al. Agric & Food Secur (2021) 10:1*
https://doi.org/10.1186/s40066-020-00272-8

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Economic analysis of integrated vegetable–poultry production systems in the Babati District of Tanzania

Naphtal Habiyaremye[1*], Justus Ochieng[2] and Thomas Heckelei[3]

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