<table>
<thead>
<tr>
<th>Title</th>
<th>Strategic Weed, Nutrient and Water Management for Increased Finger Millet Production in Eastern Uganda</th>
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</thead>
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| Purpose | To improve finger millet production in semi-arid eastern Uganda to enhance household incomes and food security |
| Project Summary | Finger millet (*Eleusine coracana*) is a major food security crop, especially for the rural poor of eastern and northern Uganda, where famine occurs frequently and food insecurity is prevalent. The crop ranks second among the major cereals in the country and is valued for long shelf-life (>10 years) without significant physical or qualitative damage by pests and diseases. Uniquely, its grain is rich in special amino acids, namely, tryptophan, cystine, methionine phenylalanine and tryosine, collectively known as *eleusinin*. Additionally, the crop is reportedly drought tolerant compared with most popular cereals. These qualitative and other considerations make finger millet a key food security crop for the poor, especially in the traditionally low rainfall areas. Unfortunately, on-farm grain yields continue to be very low and range from 400-800 kg ha\(^{-1}\) compared to on-station average yield (2500 kg ha\(^{-1}\)). Current national production figures reflect expansion of the area devoted to the crop rather than intensive productivity of the cropping systems. Indefinite expansion of the area under this crop is non-sustainable since the crop is... |
labour intensive, especially for weeding. In light of this, it is imperative that strategies for production intensification rather than extensification are exploited. Low soil fertility, weed proliferation and the associated labour requirements for weed control and drought are the major contributors to low productivity of the crop. The crop is traditionally grown in broadcast and this is a principle factor that complicates field operations including weeding. Hence, it is imperative that labour-saving field management strategies are evolved, with features that fit directly within the farmers’ crop production resource framework. The objectives of this project are as follows: (a) develop a finger millet ox-seeder capable of multiple row planting, targeted to easing on labour required for weeding in broadcast sowing patterns; evaluate the agronomic and economic viability of fertilizer (N, P and/or manure) use on finger millet production on-farm; and determine the weed seed banks in finger millet fields as a basis for effective weed management. The objectives will be pursued in a farmer-researcher participatory approach on nine farms, three from each of the districts of Pallisa and Kamuli, both in Eastern Uganda

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<th>Country and Specific Location(s)</th>
<th>Uganda: Kamuli/Buyende district (Kagulu sub-county), Pallisa district (Kamuge sub-county)</th>
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<tbody>
<tr>
<td>Participating Institutions</td>
<td>- Department of Agricultural Production, School of Agricultural Sciences, Makerere University</td>
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<td>- Agricultural &amp; Bio-systems Engineering, School of Food Technology, Nutrition and Bioengineering, Makerere University</td>
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<tr>
<td>Start Date</td>
<td>1st July, 2015</td>
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<td>End Date</td>
<td>30th July, 2017</td>
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<tr>
<td>Amount of Funding</td>
<td>US$ 59,835</td>
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Dr. John Stephen Tenywa is a soil scientists and Senior Lecturer at Makerere University (Uganda). Dr. Tenywa teaches, undertakes research and community outreach in soil fertility, plant nutrition, agronomy and natural resource management fields. He holds a Ph.D. from the Ohio State University, and is also the Editor–in-Chief of the African Crop Science Journal and the Treasurer of the African Crop science Society. He has been principal investigator for several research projects (mostly rural based) which yielded up to, 21 MSc. He has supervised to completion 8 Ph.D. students. He has published up to 26 articles in various international peer reviewed journals and several others in conference proceedings. He is the deputy editor of the Makerere University Research Journal and member of the advisory board of the Uganda Journal of Agricultural Sciences. He was the lead consultant of a team that developed the Uganda National Fertiliser Strategy and Investment Plan (2014). He has coordinated several international conferences, the most recent of which was the International Nitrogen Conference (as Chairperson to the local organizing committee) which was held in Kampala, Uganda in 2013.

Selected Publications


Selected Funded Projects

- 1994: Improvement of biological N fixation by soybean through nutritional supplementation with molybdenum and cobalt. Funded by Manpower for Development Program–MFAD/USAID.
- 1997: Urban agricultural waste management. Funded by IDRC.
- 1999: Improvement of P utilisation by low P tolerant bean genotypes. Funded by CIAT.
- 1999: Enhancing productivity of sorghum-legume cropping systems in eastern Uganda. Funded by Rockefeller Foundation under the Forum for Crop Husbandry Program.
- 2009: Improvement of plant nutrient management across dairy management systems in Uganda. Implemented in Collaboration with ILRI, NARO and Danish Institute of Agricultural Sciences (DIAS)
- 2011: Enhancing soil fertility management for dry pulse legumes (beans) for Uganda and Rwanda. Funded by USAID.