

## PHD PROGRAM OF BMEL

### *Or-Crop: Contribution of orphan crops in building resilient cropping systems in the era of climate change in Manyoni District-Tanzania*

<b>country/countries</b>	Tanzania, Germany
<b>funding agency</b>	Federal Ministry of Food and Agriculture - BMEL
<b>project management</b>	Federal Office for Agriculture and Food – BLE
<b>project coordinator</b>	Dr. Niloofar Khalili
<b>project partner(s)</b>	Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) Sokone University of Agriculture, Humboldt-Universität zu Berlin

<b>project budget</b>	<b>182.430,00</b>
<b>project duration</b>	01.08.2023-30.07.2026
<b>key words</b>	Orphan crops, climate change, sustainable food systems, one health
<b>background</b>	<p>Orphan crops also known as African indigenous crops, forgotten crops, crops for the future, neglected underutilized species (NUS), and indigenous crops are mainly grown in arid and semi-arid regions with low soil fertility and limited rainfall. Habitually well-adapted to local growing conditions and famously known for their ability to grow vigorously under a variety of harsh weather and environmental conditions. They form a significant source of not only nutritious food but also rich in medicinal attributes that fulfill the social and economic needs of local people.</p> <p>Crop diversification through orphan crops has been recommended by various researchers to be one of the competent strategies to address food and nutrition shortages given the traits found in these crops. Orphan crops such as millets, sorghum, pigeon peas, cowpeas, amaranths, bambara nuts, cassava, and sweet potatoes offer crosscutting solutions for improving agrobiodiversity that have a direct link to supporting resilient food production systems. Among other orphan crops, millet was identified as a priority for research by the African Orphan Crops Consortium (AOCC 2021). Besides the nutritional and medicinal attributes millets serve as a genetic reservoir for prospective crop enhancements, fostering resilience, and enhancing agricultural sustainability in the face of changing climate conditions, hence possess the capacity to offer a substantial contribution to worldwide food security and nutrition.</p> <p>Despite the portrayed potential, millet farmers are still producing for subsistence and commercialization is still very low caused by low surplus. Various works have been done aiming at promoting the production and consumption of millet, however, most of these works were done in India which is the major producer of millet in the world, and little has been done specifically for Tanzania. Moreover, the available literature mainly focused on the production side aiming at increasing supply through enhanced productivity among others, leaving aside the consumer preferences that affect the level of demand required in the markets.</p>
<b>objective</b>	<p>This study will contribute to the body of knowledge by striving to understand the extent of millet commercialization measured by market participation and how that impacts household welfare. Additionally, the present study aims to look closely at how women are affected in the process and if all millet as an orphan crop can be considered a women's crop. Secondly, this study aims to address the level and type of millet demand by conducting a</p>

	<p>choice experiment to understand factors behind the preferences of the consumers in various millet products and estimating their willingness to pay for the presented millet products. This is crucial to understand the barriers preventing millet consumption and how will the consumers behave if the barriers are reduced or removed. In parallel to these actions, research using a two-group experiment will be conducted in the study regions. A predesigned intervention that aims at raising consumers' and producers' awareness of the important attributes related to millet production will be implemented and later evaluated the effects of the intervention.</p>
<b>short description</b>	<p>The agrifood systems in Sub-Saharan Africa (SSA) face numerous challenges including conflicts, economic instability, and climate variability, leading to persistent food and nutrition insecurity. To address these issues, promoting diverse agroecosystems, particularly emphasizing orphan crops, emerges as a vital strategy. Despite being crucial for the rural poor, orphan crops are often neglected in policy frameworks, favouring major crops instead. In Tanzania, where agriculture contributes significantly to the GDP, the vulnerability of food systems to climate change poses a substantial threat, particularly affecting smallholder farmers dependent on rainfed agriculture. Millet, characterized by its nutritional value and adaptability to harsh environments, presents a promising solution. They offer sustainable resource management, high nutritional value, and climate resilience, making them invaluable for achieving various Sustainable Development Goals (SDGs). However, despite their potential, there is a lack of empirical evidence, especially regarding their commercialization and consumer preferences, particularly in the Tanzanian context. Bridging these knowledge gaps is crucial for unlocking the full potential of millets, enhancing food security, and promoting sustainable agricultural practices.</p>