

BACKGROUND

The AIRTEA project was conceived to contribute to the attainment of sustainable farming livelihoods and rural transformation by fostering an inclusive innovation environment in Kenya, Uganda and Rwanda. The Project is implemented in three countries of Kenya, Rwanda, and Uganda under the coordination of the Forum for Agricultural Research in Africa (FARA), Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), and the East African Farmers Federation (EAFF). AIRTEA Project is supported by the Organization of African, Caribbean, and Pacific States (OACPS) through the ACP Innovation Fund with funding from the European Union (EU). The project is aimed at facilitating multi-stakeholder partnerships among the youth, women, researchers, universities, and policy makers to foster co-creation and co-ownership of innovation, generating appropriate technologies, and increasing transfer and uptake of technologies. The project further strengthens the capacity of innovation platforms (IPs) to take advantage of technological solutions for dissemination and use of innovations, and co-design of training materials and technology delivery methods.

PROJECT OBJECTIVE

The overall objective is improved livelihoods of seed and ware potato farmers in the potato districts of Kenya (Molo and Njoro), Rwanda (Burera, Rubavu, Nyabihu, Gicumbi and Musanze) and Uganda (Rubanda and Kisoro). This project provides a conducive environment for technology transfer and adoption, knowledge sharing and therefore, makes the production of potato more profitable and sustainable by addressing the challenges that farmers face in their quest for access to profitable consumer preferred quality seed potato that support agri-businesses in seed and ware potato.

PROBLEM ANALYSIS

The potato industry is characterized by a few large-scale ware and seed producing farms and smallholder farmers who are engaged in potato production estimated at 2.1 million. Production is mainly done under rain fed conditions that match the rainfall season calendars. As of 2020, the total area under potato cultivation in EAC was approximately 500,000 Ha with yields averaging 8.0 to 11.0 T/Ha (*see Figure 1*).

Figure 1: Volume of potato produced (tons) and yield (tons/ha) in EAC from 2001 – 2019.



Source: FAO, 2021

Average potato yields in EAC over the last two decades have been inconsistent, falling short of the global average of 17.0 T/Ha(*see Figure 2*).



Figure 2: Yield for Tanzania, Burundi, Kenya, Rwanda and Uganda (ton/Ha), 1961-2019.

Source: FAO, 2021



Low yields have been, attributed to factors such as, loss of the inherent soil fertility resulting from continuous crop production over a long period of time, low adoption of technologies, innovations and management practices (TIMPS), out of 153 potato varieties registered and released by EAC partner states for commercialization, only 30% (44 varieties) have been adopted for production by farmers.

Moreover, insufficient supplementation of soil nutrients to meet the nutritional requirement of the crop results in poor root development and consequently low yields. Besides, existence of weak national and regional networks and platforms for knowledge sharing and learning and uncoordinated supportive institutional arrangements to promote the adoption of potato TIMPS remain prevalent at country level.

RATIONALE

The justification for the research for development project is based on: (i) need to bridge the seed gap supply of quality seed potato. Production of certified seed potato is extremely low, and seed multipliers in EAC Partner States are few, as most of them view seed potato production as a risky investment due to rigorous stages involved and regulatory compliance challenges. About 5% of the national demand for certified seed potatoes can be met. For instance, EAC Partner states produced 36,220 MT in 2020, representing about 15% of the projected demand (240,600 MT) for certified seed potato (EAC Strategy, 2022-2032). Rwanda made significant efforts in supply of seed potato, producing 23,013 MT but still has not been able to meet the country's demand for seed potato (see Figure 3). Kenya and Uganda have not made significant progress in the supply of seed potato to their growers in particular, the rapid technologies for quality seed potato multiplication and delivery.

(ii) Quality seed potato is a key ingredient with potential to stimulate agricultural productivity, economic growth, and entrepreneurial opportunities, particularly in the EAC Region. The opportunity to enhance the adoption of harmonized seed policies, standards, regulations and procedures to allow for crop varieties including seed and ware potato varieties to be traded regionally; (iii) the opportunity to complement ongoing AIRTEA programs and contribute to the uptake of potato TIMPS, along with other seed potato value chain technologies such as use of diffused light stores, application of quality assurance procedures and increased knowledge transfer and -business learning among farmers and other stakeholders would greatly improve the current situation.

METHODOLOGY

Multi-stakeholder co-innovation platform approach is employed to enhance the capacity of the target smallholder farmers and their networks on co-developing and availing quality seed potato of high yielding and profitable consumer preferred varieties. This is done to enable increased adoption and utilization of technologies, knowledge generation and innovative service provisions. The project links women and youth to national and regional markets through existing platforms supported by available digital marketing applications. The innovation platform approach has been tested and embraced as a model for achieving development outcomes through the cycles of learning, action and change, which further creates stronger capacity, greater visibility and effective multi-stakeholder engagements. Analysis and synthesis of the existing literature and project results further provided an evidence based approach to identifying trends and strategic issues with implications for policy.

PROJECT RESULTS

TIMPS PROMOTED AND IPS SUPPORTED

At country level, the project strengthened capacities of seed and ware potato producers and processors in agronomic management practices, post-harvest handling and agribusiness management. The project identified and strengthened 10 innovation platforms (IPs) in EA involving youth and women in the potato innovation platforms. In total, 152 (25%) out of 608 were youth members and this varied from country to country (*see Figure 4*).



Figure 3: Certified Seed potato demand and supply trends across EAC Partner States, 2016 – 2020

Figure 4: Youth and Non-Youth identified and supported in EAC.







Source: EAC Strategy, 2022-2032









TECHNOLOGIES/VARIETIES PROMOTED IN EAC COUNTRIES: KENYA, RWANDA AND UGANDA

Five (5) High yielding varieties of NAROPOT series including NAROPOT **1**, **2**, **3**,**4** & **5** characterized by yield ranging from 20 - 28T/ha, short maturity, resistant to late bright, tolerant to bacterial wilt and good processing attributes are undergoing testing and promotion through on-farm demonstrations in Uganda. In Kenya, four (4) improved varieties such as **Shangi**, **Kenya Karibu**, **Unica** and **Kenya Mpya** with yields ranging from 30-45 T/ha, farmer preferred and with high processing attributes are being demonstrated on-farm while in Rwanda, four (4) high yielding varieties ranging from 25-30T/ha namely **Kazeneza**, **Jyambere**, **Cyerekezo** and **Seka** are being made known via on-farm demonstrations plots to facilitate knowledge transfer on TIMPS and wider adoption.

AIRTEA Project focusing on Technology Transfer Through Innovative Seed and Ware Potato Production Systems in EAC has continued to show progress on selected key performance indicators (KPIs) at country level and by gender: Overall, 35, 58.5 and 20% of the farmers in Kenya, Rwanda and Uganda respectively are utilizing Technologies, Innovations and Management practices TIMPS (*see Figure 5*).

Figure 5: Farmers utilizing TIMPS at country level.



Source: AIRTEA TPP03



Photo 1: Farmers Learning Appropriate Management Practices in Uganda, Kenya and Rwanda.

Sixty-two (62) (14 in Kenya, 36 in Rwanda and 12 in Uganda) on-farm demonstrations plots on use of improved potatoes were done in the region and good yields were observed at farm level (*see Figure 6*).





Source: AIRTEA TPP03



Photo 2: Yields at on-farm demonstrations.

Seed and ware potato farmer trained in rapid technologies for quality potato production (*see Figure 7*).





Source: AIRTEA TPP03

A total of 595 farmers (205 in Uganda, 203 in Rwanda and 187 from Kenya) were trained in rapid seed multiplication technologies. In addition to potato agronomy, basics of seed production and management technologies, pest and disease control, fertilizer use and management.

A total of 34 trainings (14 in Kenya, 11 in Uganda and 10 in Rwanda) have been delivered for the innovation platforms at country level. As a result, 281 IP members involving 122 Females, 119 Males and 40 Youth; 449 in Rwanda including 179 Males, 206 Females and 64 Youth and 201 in Uganda comprised of 132 Males, 29 Females and 40 Youth have benefited from field demonstrations trainings and peer to peer learning (*see Figure 8*).



Figure 8: Number of farmers benefiting from capacity enhancement activities of IPs, by country and gender.



Source: AIRTEA TPP03

OVERALL PROGRESS ON KEY INDICATORS

In total, 171 farmers are actively using TIMPS and 595 farmers were trained in rapid seed potato multiplication technologies, a noteworthy achievement that brings us close to the target of empowering 608 farmers through enhanced knowledge, practice, and expertise. The project's positive impact is vividly evident in the 931 farmers who have directly benefited from the capacity enhancement activities facilitated by IPs (see Figure 9). *Figure 9: Overall progress on key performance indicators.*



PROJECT LEAD CONTACTS

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