



ACP Science  
and Technology II Programme

# Strengthening the capacities for fostering innovation along potato value chains in East Africa



Practical field observation tour on best planting, weeding and crop protection practices during an 'Innovation and stakeholder engagement session on seed, production and post-harvest management of potatoes', Kenya Agricultural and Livestock Research Organisation (KALRO), Tigonj, Kenya (December 2015).

## SUMMARY OF RESULTS

Setting up the 'East Africa potato research and knowledge exchange forum' – a research cluster made up of 16 research entities – has facilitated the exchange of information, the creation of 4 topical multi-stakeholder research groups (dealing with varieties, cultivation, storage and seeds), and the establishment of a web-based 'East Africa potato value chain knowledge-sharing portal'. This portal promotes co-operation between research organisations (primarily from East Africa) to create, update and use innovative technologies and best practices to enhance the quality of the potato value chain in East Africa. It contains a repository of scientific articles, guidelines on innovative technologies and best practices in the agri-food domain (relevant to the potato sector), country-specific policy recommendations (Kenya, Rwanda, Tanzania, Uganda), a database on East African and European potato research communities, and also enables scientists to prepare project proposals.

## BACKGROUND

Demand for potatoes (*Solanum tuberosum*) and derived fresh and processed products has increased significantly in recent decades, spurred by rapid urban population growth in East Africa. Mostly produced by small-scale farmers as a food and cash crop, the potato plays a critical role in reducing extreme hunger and poverty in the region. Thanks to local supply and demand mechanisms, potato prices are not heavily dependent on international markets. Consequently, strengthening the potato value chain by developing a strong production and processing sector should become a key strategy for countries to increase their productivity and reduce their dependency on imports of processed potato products. This would also have the added benefit of creating new jobs.

Potato value chains in East Africa are characterised by low productivity and insufficient product quality due to:

- limited co-operation and knowledge transfer between value chain actors;
- limited potato varieties suitable for commercial processing;
- limited appropriate post-harvest and commercialisation technologies;
- inadequate quality control and product traceability from seed to market;
- mismatch between the existing regulatory framework and the real needs of the potato sector;
- limited use of certified seed potatoes.

The value chain actors responsible for these limitations participated in the project, which strengthened their capacity to innovate and boost the quality of potato and derived products in the value chain by:

- Bringing the **potato research community** together in a virtual forum to improve knowledge sharing, collaboration and coordination of activities. Moreover, the creation of specific research groups focusing on different scientific topics will facilitate the generation of new ideas and the preparation of joint research proposals.
- Informing **private sector and civil society organisations (farmers, processing companies, traders, and non-governmental organisations)** on innovative potato production, post-harvest and processing technologies through innovation sessions, demonstration of best practices and the issuing of guidelines.
- Informing **policymakers and government authorities (national ministries of agriculture, standards bureaus, seed agencies, extension services and certification institutes)** about national and regional regulatory frameworks, both successful and unsuccessful, to help them adopt the policies, regulations and standards required to facilitate innovations along the potato value chain.

### PROJECT IMPLEMENTATION PERIOD

January 2014 – December 2016

### CONSORTIUM

- Inkoa Sistemas, S.L., Spain
- Agricultural Research Institute – Uyole (ARI-Uyole), Tanzania
- University of Rwanda, Rwanda
- Makerere University, Uganda
- University of Nairobi, Kenya
- Basque Institute for Agricultural Research and Development (NEIKER), Spain

### PROJECT CONTACT

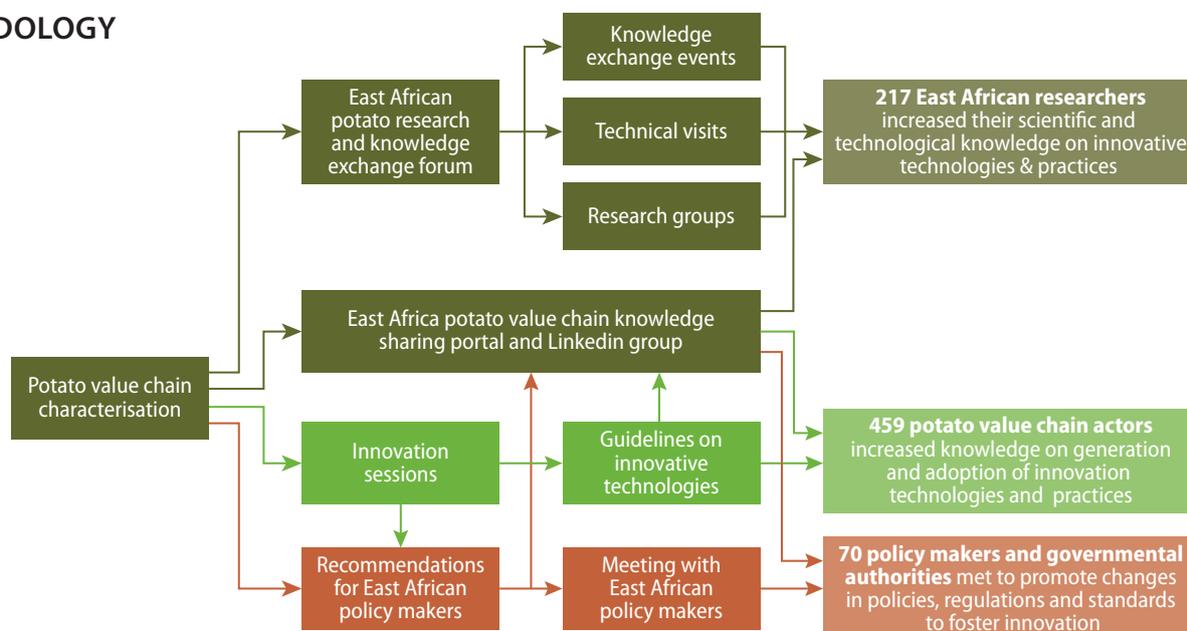
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### PROJECT WEBSITE

www.spiritacp.com  
http://platform.spiritacp.com



## METHODOLOGY



### Strengthening the scientific and technological knowledge of key East African research organisations on innovative technologies and practices

**Potato value chain characterisation:** Assessment of the state-of-the-art of research on innovative technologies and of best practices for enhanced potato quality in East Africa (literature review, questionnaires and interviews with c. 100 stakeholders from the research community, private sector and government authorities). The results were used to develop the supporting information and training materials (activities 1.2, 1.3, 2.1), and to draft policy recommendations (activity 3.1).

Release of a web-based **East Africa potato value chain knowledge-sharing portal** with registered members and filled with resources, news and events. The additional 'East Africa Potato Value Chain LinkedIn group' fosters networking between actors along various agri-food value chains (relevant to the potato sector): producers, processors, researchers...

Creation of the **East Africa potato research and knowledge exchange forum** to promote co-operation and information exchange between its members to strengthen their scientific and technological knowledge on quality issues along the potato value chain:

- **Knowledge exchange events** in Kenya, Uganda, Rwanda, Tanzania and Spain with researchers from a variety of research and higher education organisations enable knowledge- and experience-sharing in diverse areas of expertise, the setting up of partnerships, and the identification of research priorities.

- **Technical visits** to research institutions, farmers organisations and co-operatives, private companies, and government institutions

involved in potato breeding, production, processing and commercialisation. Topics covered included: quality management along the seed potato value chain; development of new potato varieties; production and post-harvest techniques; product quality, traceability and management of information; and processing techniques and technologies.

- Creation of **Research groups** to exchange information and draft research proposals.

### Strengthening the capacities of key stakeholders for generating and adopting innovative technologies and practices

**Innovation sessions** with private sector actors and civil society organisations (small-holders, farmers associations, food processing companies, agricultural extension services...), government services and research entities in Uganda, Tanzania, Kenya and Rwanda to identify the main gaps in the adoption of innovations, to foster the adoption of innovative technologies and practices, and to identify possibilities for collaboration. Policy gaps identified have been used to draft guidelines (activity 2.2) and policy recommendations (activity 3.1).



Technical visit to Njoro Canning Ltd. in Nakuru, Kenya (June 2016).

Production of a set of 4 **Guidelines on innovative technologies** and best practices on enhanced potato quality.

### Promoting changes in policies, regulations and standards to foster the generation and implementation of innovations

Production of a set of **country-specific policy recommendations** for fostering the adoption of innovations along the potato value chain through modifications in existing policies, regulations and standards.

**Face-to-face meetings** with relevant authorities and policymakers of the Rwanda Parliament, MAAIF (Ministry of Agriculture Animal Industry and Fisheries, Uganda), AFA (Agricultural Food Authority, Kenya), MAL&F (Ministry of Agriculture, Livestock & Fisheries, Tanzania), KEBS (Kenya Bureau of Standards), UBS (Uganda Bureau of Standards), TOSCI (Tanzanian Official Seed Certification Institute), UNCST (Uganda National Council for Science and Technology) and KEPHIS (Kenya Plant Health Inspectorate Service) to share gaps and weaknesses identified in current policies and to foster the adoption of policy recommendations with respect to innovations in the potato sector.



## RESULTS

### → Outputs

#### Databases

- Database of the East African potato research community (universities, research institutes, national agricultural research organisations, government inspectorate services...) - 136 organisations, 217 researchers.
- Database of 535 members of private sector, civil society and government services.

#### Networking

- East Africa potato research and knowledge exchange forum - 16 research entities, 63 researchers (East Africa, Europe); 50% are female.
- East Africa potato value chain knowledge-sharing portal - <http://platform.spiritacp.com>: 447 registered members (335 from East Africa), 301 resources (scientific articles, training documents, regulation and standards, general documents); 127 news articles and 60 events published.
- East Africa potato value chain LinkedIn group - 81 members (scientists, lecturers, students, entrepreneurs).
- 4 topical research groups - 82 researchers who share publications, exchange ideas and explore funding opportunities:
  - Study on potato varieties for processing.
  - Strengthening farmers' knowledge and capacities on pest and disease control management, and soil management and disinfection.
  - Storage facilities and packaging methods and techniques.
  - Improved access to quality seed potato/certified seed and other inputs.
- 20 meetings with 70 East African government authorities.

#### Capacity building

- 6 knowledge exchange events - 108 stakeholders from the potato research community; 37% were female.
- 31 technical visits to national research centres, processing industries and farmers associations - 40 researchers informed on quality management of seeds, development of new potato varieties, innovative production, post-harvest and processing techniques and technologies, quality control, traceability and management of information throughout the potato value chain.
- 16 innovation sessions - 459 stakeholders from the private sector, civil society and government services trained in innovative technologies and best practices for: improving quality management and product quality, production and post-harvest

technologies and practices; and improving the management of information along the potato supply chain.

#### Research proposals

- 6 research proposals submitted, with the participation of 24 research organisations.

#### Documents

- 4 guidelines:
  - Innovative technologies and best practices for enhancing quality management along the seed potato value chain in East Africa.



- Production and post-harvest technologies and practices for improving potato quality in East Africa.
- Enhancing product quality in the potato industry processing sector in East Africa.
- Enhanced control of product quality and management of information along the potato value chain in East Africa.
- Country-specific brochures with policy proposals and recommendations to foster the adoption of innovations in the agricultural sector, in particular potato production and processing, in Kenya, Rwanda, Uganda and Tanzania, focusing on 7 main areas:
  1. Seed certification and standards.
  2. Food safety and quality regulations and standards, including traceability and information management.
  3. Financing and credit policies for the adoption of new and innovative technologies in processing industries.
  4. Fostering the adoption of Good Agricultural Practices (GAPs) among farmers at production and post-harvest level.
  5. Fostering the adoption of best manufacturing practices by processing industries.
  6. Establishment of extension support services that effectively connect researchers with farmers.

7. Policies for fostering product commercialisation.

- 1 report compiling the set of country-specific policy proposals developed for East African policymakers with modifications in existing policies, regulations and standards to foster the adoption of innovations along the potato value chain in Kenya, Rwanda, Uganda and Tanzania; distributed to 146 policymakers and government authorities.

#### Visibility

- 1 project brochure distributed by email; 4,650 copies distributed at knowledge

exchange events, innovation sessions, conferences and other events.

- 17 project newsletters.
- 3 newspaper articles.
- 1 press note - "SPIRIT: A project to promote innovation along the potato value chain in Africa" published in February 2016 in several electronic media (SPRI, Sustrai, Euskadi.eus, Finanzas.com, Argentinapapa.com...).
- 1,400 project flyers distributed at the knowledge exchange events, and at conferences and congresses in Africa and Europe.

#### Publications

- SPIRIT Project: "Strengthening agricultural innovations along the potato value chain in Uganda for enhanced product quality of potato sector" Project article published in the East African magazine The Nutritionist (No. 15. Feb. 2016).

## RESULTS

### Outcomes

- Increased knowledge of East African potato researchers on: potato production and processing (seed quality management and certification, new varieties development, new production and post-harvest techniques, potato quality control and traceability, processing technologies); the formulation of research projects.
- Increased knowledge of national agricultural ministries, national standards bureaus, national seed agencies and certification institutes from East Africa on: creating a business and legal environment that will allow East African potato value chains to flourish.
- Increased knowledge of private sector and civil society organisations from East Africa on: potato production and processing (innovative production and post-harvest practices, processing technologies, seed potato value chain and quality management).

### Impacts

#### Usage

- The application of innovative technologies and best practices by potato producers is expected to reduce production and post-harvest losses, and to improve product quality. The resulting higher product prices and increased incomes will improve the welfare of their families, enhance their living conditions and generate employment opportunities. The adoption of sound phytosanitary and pesticide management practices will minimise associated environmental and health hazards.

#### Policy implications

- The project outcomes will facilitate the formulation and implementation of policies that are better able to unlock the full potential of the potato value chain in East Africa. These outcomes have already been mainstreamed in Kenya's National Potato Strategy 2016-2020, a final review of which was conducted by a team consisting of representatives from 10 Kenyan public institutions, which are also members of the East Africa Potato Research and Knowledge Exchange Forum.

#### Sustainability

- The improved capacity of the East African potato research community to formulate research projects and the enhanced co-operation between researchers is expected to contribute to the consolidation and generation of new potato research lines, as well as to increased participation in international research programmes.

## TESTIMONIALS



**Dr. Juliana Mwakasendo,**  
ARI-Uyole, Tanzania

“Knowledge exchange events and technical visits built the capacity of the participating scientists, especially regarding production /development and seed certification and standards, food safety and quality regulation and standards, potato production and post harvesting and handling, and potato processing techniques. ARI-Uyole has gained knowledge on how to prepare guidelines for seed potato production, potato production and post harvesting, potato processing and product quality control. The visibility of our institute has been increased and we have the opportunity to collaborate with other institutes working on research in Tanzania and other countries from East Africa and Europe.”



**Dr. George Ooko Abong,**  
University of Nairobi,  
Kenya

“The project has made a significant contribution in the East African potato value chain towards enhancing a body of knowledge by documenting the current status and innovations in value chains of 5 countries. Through innovation sessions, at least 100 Kenyan stakeholders were involved in information sharing and their capacities were built along the value chain, including segments of production and post-harvest management, handling and storage, processing and information exchange. Policy aspects along the value chain were reviewed and important aspects advocated for. Easy-to-use guidelines were developed to improve productivity, safety and quality of potato and potato products. A stakeholder reported during the innovation

sessions on production, ‘Why have you taken so long to hold such practical training? Please do more of these for us to be informed and have better yields and output.’ ”



**Wachira Kaguongo, CEO of**  
the National Potato Council  
of Kenya

“The potato industry in Kenya benefitted through the project. It provided a platform for information and innovation exchange to various stakeholders in the potato industry, including farmers, processors and policy makers. The various policies advocated include a strategy on how to transform and improve the seed potato value chain, regulations on implementation of a 50 kg standard bag and pricing by weight, among other policies geared towards the development of the potato sector.”

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