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OUTCOME BRIEF

March 2022

Happy farmers with good yield- you can change. Credit CIP/Elly Atieno

Potato production in Samburu County, a non-traditional potato-growing region in northern Kenya

Key messages

1. Drought- and heat-tolerant potato varieties developed by the International Potato Center (CIP) have the potential to diversify food production in a non-traditional potato-growing region of Kenya, bringing enhanced food and nutrition security to millions of people.
2. Potato has the potential to generate new employment opportunities for vulnerable, poor, and marginalized people, from farm to fork, and through the establishment of new seed production enterprises, helping to stem economic migration to urban centers, particularly of young people.
3. Training extension workers and farmers in good agricultural practices (GAP) for potato production, as well as capacity building in post-harvest activities like marketing, is essential when introducing a crop into a new area like Samburu, to boost yields and incomes, and reduce incidences of pests and pathogens.

Background

Samburu county covers an area of just over 20,000 km² and is largely populated by pastoralists who face numerous challenges including drought, widespread poverty, poor health, and livestock-raiding. Potato is a nutritious cash crop with a short growing season and is already cultivated by approximately 800,000 farmers in Kenya, contributing USD 500 million to the annual economy.

Potato has shown promise as part of a strategy to diversify food production in Samburu, according to a scoping study carried out by the Syngenta Foundation for Sustainable Agriculture (SFSA) Seeds2B. Moreover, due to a low incidence of potato pests and diseases in the region, Samburu could also provide a new source of diverse certified clean potato seed to help boost production in areas that struggle against these biotic challenges. Increased seed production could also help overcome bottlenecks in the production and bulking of early generation quality seed (EGS) and provide new employment and income opportunities for newly-trained local seed producers.

Objectives

The International Potato Center (CIP), working in collaboration with the SFSA Seeds2B team, set the following objectives to diversify food production and generate new income streams for the pastoral community in Samburu:

- To establish demonstration sites with newly released CIP varieties together with locally registered varieties and to demonstrate good agricultural practices in potato production based on the area's climatic conditions.
- To identify and support seed potato multipliers within Samburu county to produce certified seed in the area.

Approaches

The project established six demonstration sites at a range of altitude levels and temperatures in Samburu Central and Samburu North sub-counties during the October 2020- January 2021 short rain planting season. Each site covered 0.5 hectares of land and was planted with four different heat- and drought-tolerant varieties including Unica, a variety released by CIP in a previous project with SFSA, and three commercially available varieties: Asante, Shangji, and Dutch Robjyn.

Six demonstration plots were established at different altitudes and within different temperature ranges

Sub-county	Ward	Altitude (masl)	Temperature Range (°C)
Samburu Central	Poro	2,406	11-21
Samburu Central	Angata Nanyukie	2,152	10-19
Samburu Central	Loosuk	2,043	15-25
Samburu North	Baawa	1,828	12-20
Samburu Central	Maralal	1,933	15-26
Samburu North	Suguta-Marmar	1,991	15-27

Before planting, a nutrient analysis of the soil had informed the type and quantities of fertilizers needed. The soil was also analyzed for any quarantined-restricted soil-borne pests and pathogens, such as potato cyst nematodes or bacterial wilt. None was detected.



Training on certified seed production. Credit CIP/Ely Atieno



Farmers happy to see the yield of potato from demonstration plot during field day. Credit CIP/Ely Atieno

Groups of 10-15 extension staff and farmers were trained in good agronomic practices at each site at varying stages of the growth cycle and at planting time. Training sessions included, among others, field preparation, planting, hilling, pest and disease management, and cost-benefit analysis of potato production during various potato growth stages.

A field day on mechanized potato production that included training and demonstrations of plowing, harrowing, and planting was co-organized with the Samburu agriculture department of the county government.



Field day in mechanized potato production for training and demonstrations at Poro ward in Samburu county in the 2020 short-rains season including the use of a rotary tiller to make planting ridges which makes for good growth. Credit CIP/ Elly Atieno

A 5-acre multiplication site was also established in Poro ward and planted with 50 bags each of Asante and Shanghi seed in anticipation of a rise in demand for quality seed due to the project. Training in seed production and multiplication was also delivered.

Achievement

This project has laid the groundwork for future projects focused on supporting potato production in non-traditional potato-producing regions in Kenya. It has achieved this objective through a strong partnership between CIP and SFSA with support from the Samburu county government, Samburu County Agriculture Department, and local partners on the ground, including the farmers.

A major milestone was the capacity-building initiative for good agricultural practices in potato production. Multiple training sessions on many aspects of good agricultural practices and on mechanized potato production took place, despite restrictions on travel and gatherings due to COVID-19, which severely affected and delayed many activities. The mechanized production training alone was attended by 318 participants (32% women and over 60% young people), while GAP trainings took place on each of the six demonstration sites in groups of approximately 15 farmers.

Another milestone was the successful supply increase newly registered varieties – varieties

specifically designed to meet the challenges that farmers are facing in terms of heat and drought. With CIP and SFSA staff providing technical backstopping for the first time in the region, the crop passed certification standards despite the lack of rainfall which severely affected yields. This meant that certified seed of Asante and Shanghi could be sold for planting in the 2021 long-rains season, and continue after the project has finished, providing new income generation options and reaching local farmers with quality seed. Additionally, 2,000 rooted apical cuttings of Shanghi and Unica were introduced into the area and 1.2t of basic seed of Wanjiku were planted to produce certified seed.

Discussion – Ways forward

This project has shown it is possible to tap into the potential of potato to diversify food production and income streams in non-traditional potato-growing areas like Samburu. In this case, potato is both an additional food source for a marginalized, pastoral community, and, as a cash crop, an additional source of income. Developing new income streams is critical to decrease poverty and to attract and retain young people, helping rural areas to stem the tide of economic urban migration.

Samburu like many other crop-growing areas around the world is experiencing increased and prolonged spells of heat and drought. This means that farmers

need access to sufficient quantities of newly released potato varieties like Unica and Asante that can adapt and thrive in changing local climatic conditions. Establishing Samburu as a hub for seed multiplication and production will boost the supply of certified seed of climate-smart varieties to local farmers and potentially to farmers in neighboring countries, too. This would ensure the production of disease-free seed – as the area is free from regulated potato pests and diseases– and reduce the need to import seed from distant seed producers and create additional opportunities for local

entrepreneurs. The closest certified seed producer to Samburu prior to this intervention was more than 300km away.

GAP training is also a critical intervention to build capacity in sustainable potato production practices, boost yields, and reduce the risk of future contamination of the land by crop pests and diseases. It is also important to be able to adapt the training to local contexts, for example, the lack of labor in Samburu during the cropping season highlighted the need to introduce mechanized production options.

Results
Six demonstration sites established at a range of altitude levels and temperatures in Samburu Central and Samburu North sub-counties planted with four different heat- and drought-tolerant varieties including Unica, Asante, Shangi, and Dutch Robjyn
A 5-acre seed potato multiplication site established in Poro ward and planted with Asante and Shangi potato varieties
2,000 rooted apical cuttings of Shangi and Unica introduced
1.2t of basic seed of Wanjiku planted to produce certified seed
Mechanized production training attended by 318 participants (32% women and over 60% young people)
More than 100 farmers trained on GAP across the 6 demonstration sites.

Duration

April 2018-March 2021

Project Title

Dissemination of climate smart, consumer-demanded potato varieties

Budget

USD 270,000

Donors

Syngenta Foundation for Sustainable Agriculture (SFSA)

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