



# FEED<sup>THE</sup>FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



## IMPACT REPORT



**USAID**  
FROM THE AMERICAN PEOPLE

**FEED THE FUTURE  
KENYA INNOVATION ENGINE**

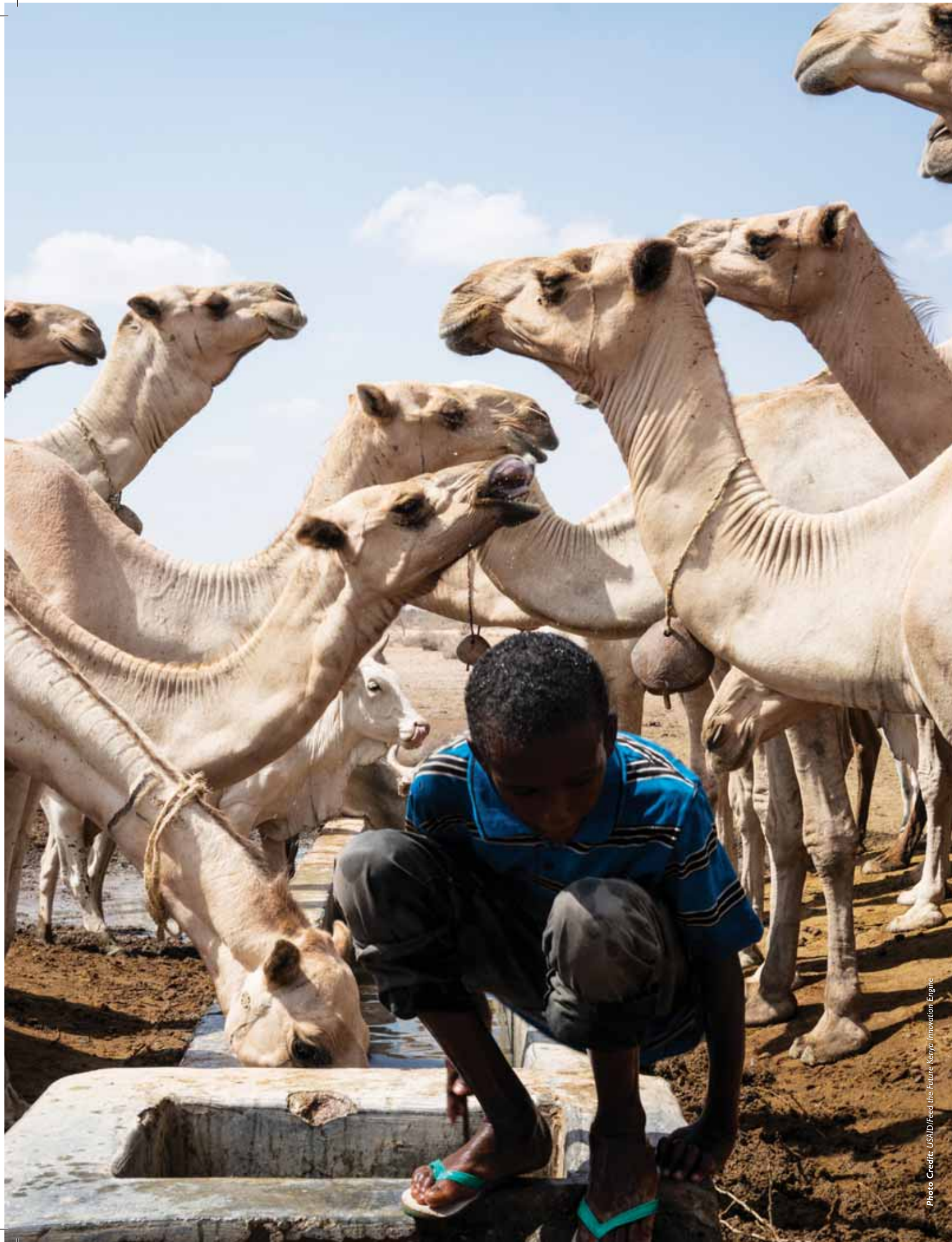


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# List of Abbreviations and Acronyms

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<b>A.I.</b>	Artificial Insemination
<b>ALIN</b>	Arid Lands Information Network
<b>ASDS</b>	Agricultural Sector Development Strategy
<b>ASK</b>	Agricultural Society of Kenya
<b>ERP</b>	Enterprise Resource Planning system
<b>FARMIS</b>	Farm Records Management Information Systems
<b>FTF</b>	Feed the Future
<b>GDP</b>	Gross Domestic Product
<b>GoK</b>	Government of Kenya
<b>KENDAT</b>	Kenya Network for Dissemination of Agricultural Technologies
<b>KIE</b>	Kenya Innovation Engine
<b>HCD</b>	Human-Centered Design
<b>IAC</b>	Investment Advisory Committee
<b>ICIPE</b>	International Center of Insect Physiology and Ecology
<b>ILRI</b>	International Livestock Research Institute
<b>IMS</b>	Innovation Measurement Scale
<b>INTENSE</b>	Innovative Inclusive Training & Extension for Production of Sustainable Safe Food
<b>IST</b>	Innovation Screening Team
<b>KEMRI</b>	Kenya Medical Research Institute
<b>KEPHIS</b>	Kenya Plant Health Inspectorate Service
<b>KHCP</b>	Kenya Horticulture Competitiveness Program
<b>KIE</b>	Kenya Innovation Engine
<b>KLMC</b>	Kenya Livestock Marketing Council
<b>M&amp;E</b>	Monitoring and Evaluation
<b>NGOs</b>	Non-Governmental Organizations
<b>PCPB</b>	Pest Control Products Board
<b>PMP</b>	Performance Monitoring Plan
<b>RFA</b>	Request for Applications
<b>STTA</b>	Short-Term Technical Assistance
<b>TIA</b>	Takaful Insurance of Africa
<b>TLU</b>	Tropical Livestock Units
<b>USAID</b>	United States Agency for International Development
<b>USG</b>	United States Government







## CONTEXT

Kenya has the potential to be one of Africa's great success stories from its growing youthful population, a dynamic private sector, a new constitution, and its pivotal role in East Africa. Addressing challenges of poverty, inequality, governance, climate change, low investment and low farm productivity to achieve rapid, sustained growth rates that will transform lives of ordinary citizens, is a major goal for Kenya<sup>1</sup>.

At number 40 out of 138 economies on innovation and sophistication factors, and number 57 out of 135 economies for innovation capacity, Kenya ranks reasonably favorably on these parameters<sup>2</sup>.

With a population of over 47 million people, Kenya has experienced dramatic population growth since its attainment of independence in 1963 as a result of its high birth rate and declining mortality rate. More than 40% of Kenyans are under the age of 15 and the country's median age is approximately 20 years. Kenya's persistent rapid population growth strains the labor market, social services, arable land, and natural resources<sup>3</sup>. Moreover, only about 20 percent of Kenyan land is suitable for farming, and maximum yields<sup>4</sup>.

Agriculture is the second largest contributor to Kenya's \$64 billion Gross Domestic Product (GDP), representing 33% of GDP overall. It provides 75% of Kenya's population with at least part-time employment, including livestock and pastoral



**40**

Kenya's rank for innovation and sophistication, out of 138 economies in 2016 - 2017



**47 MILLION**

Kenya's population estimate



**\$64 BILLION**

Kenya's Gross Domestic Product, with agriculture as the second largest contributor at 33%



**> 75%**

Average agricultural output from small-scale, rain-fed farming and livestock production

<sup>1</sup> [www.worldbank.org](http://www.worldbank.org)

<sup>2</sup> 2016-2017 World Economic Forum Global Competitiveness Index

<sup>3</sup> CIA Fact Book

<sup>4</sup> [www.feedthefuture.gov](http://www.feedthefuture.gov)

activities. Over 75% of agricultural output is from small-scale, rain-fed farming or livestock production with dairy, the largest sub-sector, contributing about 8% of GDP and 14% of agricultural GDP.<sup>5</sup>

Kenya is poised for an agricultural breakthrough. Yet smallholder farmers struggle to maximize their income potential with outdated agricultural techniques that result in sluggish productivity. Despite robust agricultural research within Kenya, translating research into action by linking farmers to improved agricultural techniques and labor-saving technologies has been a consistent challenge. Yet, agriculture is essential to Kenya's continued economic growth. With nearly 50 percent of Kenya's population remaining below the poverty line, and women and youth bearing an unequal burden<sup>6</sup>, addressing some of the country's predominant impediments to agricultural growth will positively impact food insecurity and household nutrition on a wide scale.

To help address some of these key agricultural constraints, the Government of Kenya has developed its 2010-2020 Agricultural Sector Development Strategy (ASDS), which establishes a national

framework to help mitigate barriers to sectoral growth and spur income generation for farmers. Additionally, Kenya has spearheaded reforms that will help aid in this goal. The country has made a strategic transition from a command economy to a market economy, and its new Constitution has established policies, rules and regulations to help facilitate a business enabling environment and spur creative solutions to the country's most pressing agricultural problems.

This combination of a burgeoning enabling environment, paired with a national focus on finding innovative solutions to address systemic food security and health challenges, has resulted in a number of incubation centers and innovation hubs being established in the country, allowing for innovators and risk-takers to test and scale their ideas.

USAID designed the Kenya Innovation Engine with the objective of addressing persistent challenges to food security and malnutrition through innovations. With a mandate to identify, nurture and scale innovations in agriculture, the program served as an incubation-like mechanism that allowed for testing and organic scaling of a range of cutting-edge technologies.

<sup>5</sup> Livestock Research for Rural Development

<sup>6</sup> Kenya Agricultural Sector Development Strategy (2010–2020)





Photo Credit: Bernard Munro/USAID Feed the Future Kenya Innovation Engine

## PURPOSE OF THIS REPORT

Since 2012, through its Feed the Future Kenya Innovation Engine program, USAID has been working to accelerate efforts that address poverty and food security needs in Kenya by harnessing the power of innovative private sector approaches in agriculture and boosting investments towards new approaches in the sector.

This report reviews impacts and achievements of the \$18.3 million Feed the Future Kenya Innovation Engine program, implemented by Land O'Lakes International Development in partnership with Dalberg Global Development Advisors and IDEO.org from May 2012 to November 2017.



**5**

Number of years Feed the Future Kenya Innovation Engine program has run in Kenya



**\$18.3 MILLION**

Funding level for the Feed the Future Kenya Innovation Engine



## OVERVIEW: KENYA INNOVATION ENGINE PROGRAM

Feed the Future Kenya Innovation Engine (KIE) is a five-year program designed to identify, nurture and bring to scale innovative, private sector-oriented solutions to food insecurity, under-nutrition, and poverty.

A project under former President Obama's Feed the Future presidential initiative, and building on Kenya's capacity for innovation, the program applied a blend of private sector business techniques to grow enterprises that address persistent hunger and increase resilience among the rural poor.

Until early 2015, using an open and competitive process, KIE solicited and identified agriculture and nutrition innovations with the greatest sustainable potential to improve on-farm productivity, household income, market systems and nutrition in selected value chains. KIE partnered with entrepreneurs who had designed new concepts, products and services to support innovation experimentation and maximize their commercial potential. The project did this through seed funding and tailor-made technical assistance to deliver viable agricultural solutions to various value chain actors.

In partnership with 20 enterprises, KIE tested and piloted a total of 24 diverse innovations including the

use of ICT to streamline various value chain challenges, improved on-farm productivity of selected value chains, improved market efficiency and increased smallholder revenues.

Value chains of intervention included dairy, non-dairy ruminant livestock (meat value chain), fruits and vegetables, maize, and staple food crops including Irish potatoes in a total of 35 counties, 26 of which are designated Feed the Future counties.

In keeping with program design, KIE supported innovations at three stages: proof-of-concept (early stage), pilot rollout (ready for market testing) and transition to scale (mass market-ready) across Feed the Future value chains. Three of these innovations have been recommended for mass marketing<sup>7</sup>. KIE served a total 22 value chains in a total of 35 counties (including nine non-Feed the Future counties).

The program placed special emphasis on enhancing enterprise development, fostering financial sustainability for supported enterprises and increasing employment opportunities in targeted value chains while maintaining an inclusive approach for gender and youth.

<sup>7</sup> Kenya Biologics Ltd.'s Tutrack biological control for the *Tuta absoluta* tomato pest; Amtech Technologies Ltd.'s EASYMA 6.0 dairy management system; and iProcure Ltd.'s last mile distribution innovation

Feed the Future Counties and Value Chains of Implementation		
County		Value Chains
1. Bomet		Irish Potatoes/ Dairy
2. Bungoma		Tomatoes
3. Elgeyo Marakwet		Dairy
4. Garissa		Livestock/Meat
5. Homa Bay		Horticulture/Cereals
6. Isiolo		Livestock/Meat
7. Kericho		Tomatoes/Dairy
8. Kisii		Dairy
9. Kisumu		Maize
10. Kitui		French beans/ Cabbage/Kales
11. Machakos		French beans/ Mango/ Maize
12. Makueni		French beans/ Mango/ Maize
13. Marsabit		Livestock/Meat
14. Meru		Horticulture/Irish potatoes/ Cereals/ Bananas/Dairy
15. Migori		Tomatoes
16. Nandi		Dairy
17. Nyamira		Dairy
18. Siaya		Horticulture/Cereals
19. Taita Taveta		Tomatoes
20. Tana River		Livestock/Meat
21. Tharaka Nithi		Horticulture/Cereals
22. Trans Nzoia		Dairy
23. Turkana		Livestock/Meat
24. Uasin Gishu		Dairy/Meat
25. Vihiga		Dairy
26. Wajir		Livestock/Meat

By systematically testing, cultivating, and adapting high-impact innovations, KIE has also been working to promote equal opportunities for women, youth, and other vulnerable groups.

Beyond coaching and nurturing selected innovations to support their development and adoption, KIE also worked to benefit local institutions by promoting innovative practices to increase adoption of innovative agricultural technologies and practices and private sector investment in agriculture and nutrition-related activities.

## Program Award Recipients and Innovations

### STAGE TWO - PILOT ROLL-OUT

- ⊗ *Lachlan Kenya Ltd* - *Viazi Power* fusion farming technology for Irish potato production.
- ⊗ *Indicus EA Ltd* - Establishment of a high-tech artificial insemination training center
- ⊗ *Takaful Insurance of Africa* - Index-based Livestock Takaful
- ⊗ *Value Farms Ltd.* - Shifting the Paradigm on Land Consolidation through Public-Private Partnership for Commercial Agriculture

### STAGE TWO - GRADUATED FROM STAGE ONE

- ⊗ *Wanda Organic Ltd.* - Organic fertilizers for smallholder farmers
- ⊗ *Arid Lands Information Network (ALIN)* - Farm records management information system for enhanced access to financial and other services for improved food and nutritional security.
- ⊗ *iProcure Ltd.* - Last mile distribution of farming inputs.
- ⊗ *Kenya Livestock Marketing Council (KLMC)* - Strengthening the dry land economy for pastoralist communities through livestock identification and traceability mechanisms.
- ⊗ *Amtech Technologies Ltd.* - Scale up of EASYMA 6.0 milk weighing system.
- ⊗ *Kenya Biologics Ltd.* - Combating Tuta absoluta in tomatoes for smallholders

### STAGE ONE - PROOF OF CONCEPT

- ⊗ *M-Farm Limited* - Linking smallholder farmers to wholesale markets through an agent network utilizing mobile technologies
- ⊗ *Quest Agriculture Limited* - Innovative inclusive training and extension for production of sustainable safe food (INTENSE)
- ⊗ *The Real IPM Company Limited* - Biological control of fruit fly in mango
- ⊗ *University of Nairobi (UoN)* - Innovative cold storage option (*CoolBoh*) for smallholder farmers to reduce postharvest losses
- ⊗ *Virtual City Limited* - Automated supply chain management at horticultural producer, aggregator and processor levels using *AgriManagr™*
- ⊗ *Kenya Medical Research Institute (KEMRI)* - Design and clinical evaluation of a school meal with deworming properties.
- ⊗ *Maseno University* - Enhancing capacity of Maseno University Seed Unit to deliver to market resilient new maize varieties in western Kenya.
- ⊗ *University of Nairobi (UoN)* - Low-cost optical sorting to remove mycotoxins from maize in local Kenyan mills.
- ⊗ *Caytree Partners Limited* - Financial Empowerment and Loan Assistance Program
- ⊗ *KENDAT* - Agricultural Mechanization Hubs to Boost Youth-Attractive Commercial Farming Ventures.





## KEY ACHIEVEMENTS

### BY INDICATOR

KIE successfully achieved and even exceeded most of its targets, as summarized in the table below. Due to the program's facilitative approach, inherent design to promote system-wide change in agriculture and the early-stage commercial nature of most of the innovations supported, much more impact is likely to be realized in the period after the project.

During the program life, KIE delivered results in the form of:

- i. Enterprises and producer organizations applying improved technologies;
- ii. Acreage under new or improved technology and management practices;
- iii. Percent change in gross margins;
- iv. Artificial insemination (A.I.) services and possible impact on improved breeds;
- v. Livestock-focused innovations to mitigate losses and stabilize livelihoods in pastoralist communities; and
- vi. Enhancing the value of animals, including dairy, through a livestock traceability system.



**202,364**

Number of farmers who have used KIE-supported products and services to date



**1,400**

Number of enterprises (producer organizations, women's groups, trade and business associations) that have benefited from KIE-supported products and services to date



**20,790**

Number of hectares on which KIE-supported products and services have been applied to date



Indicator	Life of Project Target	Life of Project Actuals
Number of jobs attributed to FTF implementation (RiA)	348	6,055
Gross margin per hectare, animal or cage of selected product (RiA) <sup>x</sup>		
<i>Banana</i>	2,200	1,739
<i>Cabbage</i>	2,333	4,845
<i>Green Beans</i>	3,755	6,262
<i>Maize</i>	500	727
<i>Milk</i>	1,120	1,420
<i>Potatoes</i>	1,914	2,338
<i>Tomatoes</i>	6,649	6,840
Number of hectares under improved technologies or management practices as a result of USG assistance (RiA) (WOG) <sup>x</sup>	25,175	20,789.5
Number of public-private partnerships formed as a result of FTF assistance (S)	37	56
Number of rural households benefiting directly from USG interventions (S)	157,788	254,199
Value of incremental sales (collected at farm-level) attributed to FTF implementation (RiA) <sup>x</sup>	29,091,768	21,891,167.4
Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation (RiA)	4,513,000	8,236,834
Number of technologies or management practices in one of the following phases of development: (Phase I/II/III) (S)		
<i>Phase 1: Under research (proof-of-concept or early stage)</i>	21	20
<i>Phase 2: Under field testing (pilot roll-out or ready for market testing)</i>	11	9
<i>Phase 3: Made available for transfer (transition to scale or mass market-ready)</i>	1	3
Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and CBOs that applied improved technologies or management practices as a result of USG assistance (RiA) (WOG)	92	1,400
Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance ((RiA) (WOG)	112,100	202,364
Number of MSMEs, including farmers, receiving business development services from USG assisted sources	321	200
Number of individuals who have received USG supported short-term agricultural sector productivity or food security training	128,964	161,370
Number of people with a savings account or insurance policy as a result of USG assistance	5,000	16,512

## BY THEMATIC FOCUS AREA

### 1. ENHANCED TECHNOLOGY DEVELOPMENT, DISSEMINATION AND INNOVATION

To date, **202,364** farmers and over **1,400** enterprises (producer organizations, women's groups, trade and business associations) have used KIE-supported products and services on **20,790** hectares. About **51%** of farmers using the products and services are repeat users, paying market rates. Farmers using these products and services have reported that they work.

These include new plant varieties<sup>8</sup> and agricultural inputs such as Prime EC (foliar food), Plantmate Organic Fertilizer<sup>9</sup>, and Tutrack (biological tomato pest management technology), among others.

#### Farmers benefitting from new and improved technologies

- Over **7,000** farmers in **22** counties bought and used **Kenya Biologics' Tutrack®** and confirmed its efficacy; many of these farmers are experiencing **yield increases of at least 50%**. Even better, a large percentage of these farmers have declared that they will return to full-scale tomato production following a loss of interest in recent years after experiencing losses as a result of devastating invasions by the deadly *Tuta absoluta* tomato pest.
- With KIE's support, **KENDAT** established a mechanization hub and model farm to provide mechanization services to small and medium-scale farmers; a total **254** farmers in Meru County with over **500** acres accessed the services.
- Overall, **iProcure** reached over **20,000** farmers, significantly surpassing the target of **15,000** farmers. **iProcure** is providing them access to quality inputs directly from various manufacturers who have registered on the **iProcure** platform. At least **20** cooperatives have signed up to use **iProcure** - either as an enterprise resource planning (ERP) to streamline operations, or to order inputs. With the elimination of many supply chain players as a

result of the system, cooperatives have realized **cost savings of up to 15-20%** on the price of purchases, among other benefits. Farmers are also assured of access to cheaper and genuine inputs when they purchase via the platform.

- More than **110,000** farmers are currently benefiting from the **Amtech Technologies' EASYMA 6.0** – a dairy ERP system. On the enterprise front, at least **37** chilling plants and processors in **5** counties<sup>10</sup> are currently using the system enabling farmers to get a **fair price** for their milk through **real-time weighing and receipting** at collection centers as well as at the farm gate. **EASYMA 6.0** provides real-time end-to-end integration of the dairy value chain and provides buyers and processors with **better knowledge** on the amount of milk farmers are producing and the **exact quantities of milk** held at chilling plants and collection centers. Further, it provides an improved user interface and **potential for added functionalities** such as allowing farmers to register and **receive information using a mobile application** and a module that provides **livestock and farmer insurance**.
- Indicus trained **200** artificial inseminators, 49 of whom acquired equipment to provide A.I. services and have already successfully served **4,586** farmers. These services have led to improved breeds among smallholder farmers, boosting productivity and improving livelihoods in a total of **20** counties (**12** Feed the Future counties<sup>11</sup> and eight non-Feed the Future counties<sup>12</sup>).
- Through its index-based, Sharia-compliant livestock insurance innovation, **Takaful Insurance of Africa** provided compensation in the form of **payouts of over KES 37 million** for drought-induced forage loss, thereby mitigating losses and

<sup>8</sup> Maseno University delivered four disease-resistant maize varieties, which have received regulatory approval for commercialization

<sup>9</sup> Wanda Organic Ltd. garnered regulatory approval to test and pilot Prime EC and Plantmate Organic Fertilizer in the local context and partnered with patent-holder in the Philippines to secure East Africa-wide.

<sup>10</sup> Bomet, Kericho, Nandi, Uasin Gishu and West Pokot Counties

<sup>11</sup> Meru, Makueni, Elgeyo Marakwet, Trans Nzoia, Nandi, Uasin Gishu, Siaya, Kisumu, Migori, Homa Bay, Nyamira, and Bomet Counties

<sup>12</sup> Mwingi, Embu, Nyeri, Muranga, Kiambu, Narok, Nyandarua, and Nakuru Counties.

protecting the livelihoods of vulnerable pastoralist communities. Over **7,607** households have directly purchased the innovation and a further **18,000** households under the GoK KLIP Program<sup>13</sup>.

<sup>13</sup> Government of Kenya - Kenya Livestock Insurance Program: Takaful Insurance of Africa Ltd. (TIA) has entered into a Public Private Partnership with the Government of Kenya to implement the Kenya Livestock Insurance Program (KLIP). The program commenced on October 1, 2017 for a one-year period. The contract covers 18,012 beneficiaries with a total of 90,060 total livestock units. Through this arrangement, the Government will purchase index-based livestock insurance policies for vulnerable populations in Northern Kenya, while TIA will aggressively sell voluntary policies to livestock farmers.

- ② Anecdotal evidence from Kenya Livestock Marketing Council's livestock identification and traceability system indicates that a tagged bull is worth **double the price of an untagged bull**; traders offer more for tagged livestock because they are able to track ownership and medical history, thus allowing proper valuation of the animals. 33,000 livestock are now registered on LITS for over 5,500 households.



## CASE STUDY



### Amtech Technologies Limited: Scaling up *EASYMA* for Dairy Farming Sustainability



Photo Credit: Bernard Mumo/USAID Feed the Future Kenya Innovation Engine

► A milk farmer in Nandi County displays an instant digital receipt showing his milk delivery for the day.

#### State of business and innovation at award stage

**Amtech Technologies Limited** offers products and services to business entities in all aspects of ICT and software systems development. By the time it partnered with USAID, Amtech had developed and deployed EASYMA 5.0 which is LAN (desktop-based system). It wanted to upgrade EASYMA 6.0 which provides an improved user interface and potential for added functionalities such as allowing farmers to register and receive information using a mobile application and having a module that provides livestock and farmer insurance.

### Nature of KIE intervention

*EASYMA 6.0* will allow farmers get a fair price for their milk through real-time digital weighing and receipting, as opposed to manual weighing at collection centers. Further it improves end-to-end integration of the dairy value chain, with buyers and processors having better knowledge on the amount of milk farmers are producing and the exact quantities of milk held at chilling plants and collection centers. The KIE intervention provided for the following.

- i) Upgrade of *EASYMA* from LAN based 5.0 to web-based 6.0
- ii) Upgrade of mobile software app from *EASYMA 5.0* to *EASYMA 6.0*
- iii) Implementation of *EASYMA 6.0* at 19 cooperatives<sup>14</sup>. Major costs including labour, equipment (3-in-1 machine) and transport
- iv) Design, fabrication and purchase of 135 integrated digital weighing scales (also referred to as 3-in-1 equipment) inclusive of phone, printer and digital weighing scale

### Achievements

- i) **There are a total of 37 chilling plants and processors** where *EASYMA 6.0* has been installed
- ii) **Financial inclusion among the farmers.** There are a total of seven (7) SACCOs which are actively using *EASYMA 6.0*, and which rely on farmer records generated by the *EASYMA 6.0* to inform their lending.
- iii) **A total of over 110,000 farmers benefiting from the innovation.** The number of farmers registered on and using *EASYMA 6.0* from the 37 chilling plants and processors currently stands at more than 110,000.
- iv) **Amtech is financially stable.** Amtech is financially stable and posting profits already, from revenues coming from service subscription fees and payment for accessing farmer information and individual transactions.
- v) **Amtech is investor attractive.** A number of organizations have expressed interest in Amtech to provide the company with grant and equity funding. Some of these include Visa, Microsoft for grant funding and Radio Africa, Melken for equity stake.

### Key next steps for the Amtech innovation

- i) Out scaling the business in other counties
- ii) Concluding discussion on grant and equity support



**110,000**

Number of farmers currently benefiting from the Amtech Technologies' *EASYMA 6.0* – a dairy enterprise resource planning (ERP) system.



**37**

Number of chilling plants and processors where *EASYMA 6.0* has been installed

<sup>14</sup> Cherangany, Kibiyet, Kokiche, Lelan, Lelchego, Metkei, Olbutyo, Olenguruone, Siongiroi, Sot, Tanykina, Lessos, Keringet, KCSEED, Cherobu, Soitaran, Sabati, Chepkalwal, and Kapset. On average, each cooperative has two branches - a total of at least 37 chilling plants or processor locations.



## 2. IMPROVED PRODUCTIVITY AND PROFIT OF SELECTED VALUE CHAINS

### Gross margin increases

By September 2017, over **202,364** farmers and more than **1,400** enterprises (producer organizations/ women's groups/trade and business associations) on a total **20,790** hectares had used KIE-supported products and services. More than half of these - approximately **51%** are repeat users, paying market rates. Farmers applying KIE-supported technologies report that the products and services work and that as a result, they have realized consistent increased **profits ranging from 110% to 160%** in their respective crop/livestock enterprises as measured by gross margin. Farmers applying supported technologies in maize, cabbage, green beans, milk and tomatoes have reported a **54.4%** increase in Gross Margin from

baseline on average, with specific gross margins from specific enterprises ranging from **110% to 160%**<sup>15</sup>.

### Incremental sales at farm level

All 202,364 farmers who have used KIE supported innovations have realized a **22%** increase in sales on average. Dairy farmers, who make up slightly over half of farmers using these innovations reported an **18%** increase in sales, while potato farmers, though few, reported the highest change of over three times increase in sales, indicating a significant rise in income. (See success story: *Wanda Organic Ltd*.)

<sup>15</sup> Green beans – 160%; Cabbage – 110%; Maize – 145%; Milk – 26% and Tomatoes – 29%



### SUCCESS STORY



## Wanda Organic Ltd: Organic Fertilizer Changes Naomi's Family's Fortunes



*"I used to struggle a lot with my farm, my crops did not produce good yield and I would make a loss."*

– Naomi Munyao

▶ Naomi Munyao works on her farm.

At the start of 2014, 55-year-old Naomi Nthenya Munyao was just a regular smallholder farmer in Machakos County in Kenya's semi-arid eastern region. Like most other rural, smallholder families in Kenya, Naomi and her family depended on agriculture as an important part of their livelihoods. Yet her farm produced poor and insufficient yields. Although Naomi was lucky to have a water source on her farm – a rare commodity in this area, like many other farms in the region – her land was degraded and depleted of nutrients.

In February 2014, Wanda Organic Ltd., a Kenyan start-up and awardee under the USAID-funded Feed the Future Kenya Innovation Engine, had farmers testing Wanda Organic's *Plantmate* Organic Fertilizer. Selected as the lead farmer in the Nditha Women's Group in Mwala, a rural community in Machakos County, Kenya, Naomi experimented with *Plantmate* on various crops and adopted it for French beans and tomatoes. Later that year, her son Titus, who manages the demo site, realized a bumper tomato harvest amounting to three times the usual yields!

Previously, Naomi's farm did not produce good and sufficient yield despite having a water source on her farm.

"I used to struggle a lot with my farm, my crops did not produce good yield and I would a make a loss" said Naomi.

So enthralled is Titus with the organic fertilizer, that he offered Wanda Organic an acre of the farm for further demonstration. He has also begun championing the use of the fertilizer among neighbors, and interest in the area is growing. He bought two goats with part of the profits from the sale of tomatoes and, believe it or not, named them Wanda in appreciation of the remarkable results from the organic fertilizer! Demand for the products is rising as farmers see the remarkable results for themselves; vegetables grown using the organic fertilizer produce a bigger and healthier yield than those grown using the prevalent synthetic fertilizers. When used in isolation, synthetic fertilizers are damaging to the soil.

Now in the pilot roll-out stage of this innovation, Wanda Organic continues to work closely with partners in both the public and private sector, with the long-term goal of impacting at least 25 percent of the five million farmers the Government of Kenya reaches with extension services. In addition to supporting Wanda Organic through seed funding, Feed the Future Kenya Innovation Engine is also providing technical experts to advise the company and support its commercial viability for sustainability.

### 3. IMPROVED MARKET EFFICIENCY AND ENHANCED TRANSPARENCY AT COMMODITY MARKETING OUTLETS

#### Market efficiency

KIE's activities have contributed to improved market efficiency demonstrated in several value chains. In the case of milk for example - through its EASYMA 6.0 application, which weighs milk to two decimal points – Amtech Technologies has enhanced transparency at milk marketing outlets thereby boosting farmer earnings.

This has translated to an increased volume of milk marketed formally as farmers trust their cooperatives more and opt out of informal markets.

For instance, data from Siongiroi Dairy in Bomet County shows an 18 % increase in milk volumes delivered to the cooperative since the adoption of EASYMA 6.0. This contributes to the national objective of improving the quality and safety of milk at the market end.

Despite playing a key role in making milk accessible to a large number of consumers, informal milk marketing is constrained by several challenges, the most significant being the threat to consumer safety due to poor milk handling practices. These include poor hygiene, adulteration, use of non-food grade containers and non-refrigerated transportation systems.

#### Expansion of local and international markets

KIE awardee Kenya Biologics Ltd. has received **demand for Tutrack® from five African countries** - Botswana, Nigeria, Tanzania, Zambia, and Zimbabwe. The company has established a **subsidiary in Tanzania** with plans to be fully registered in 2017, with **Uganda following closely in 2018**.

Meanwhile, the firm continues to supply modest quantities of the innovation in Botswana, Nigeria, Zambia and Zimbabwe on an order basis, with plans to cement the supply, sales and distribution channels over time.

#### Lucrative markets for livestock farmers

Kenya Livestock Marketing Council's (KLMC's) Livestock Identification and Traceability System (LITS) innovation involves both the registration of animals on a central database and the placement of unique and traceable physical identifiers or tags on animals. The searchable database contains all relevant livestock information such as animals' identification numbers; their age, sex, breed, color; extension and veterinary services received; name and contacts of their owners, and the name of their location or source markets. Each registered animal is marked and traced using a tamper-proof tag with a county-based code that matches the animal's identity on the database.

By providing useful information about animal history, the LITS innovation benefits livestock farmers by raising the commercial value of their animals, expanding their access to local and export markets, decreasing the threat of theft or disease and providing animal records that can be used to inform decisions such as animal breeding. Traders are offering significantly better prices for tagged livestock because they can track ownership and the medical history of the livestock, allowing them to appropriately value the animals. Reports so far indicate that a tagged bull, for example, can be worth up to double the price of an untagged bull in export markets. (*See success story: KLMC*).



## SUCCESS STORY



### KLMC Livestock Identification Innovation Improves Security, Boosts Production and Trade



Photo Credit: Bernard Mumo/USAID Feed the Future Kenya Innovation Engine

► Livestock tagging at Wesley Too's farm.

*"Many international buyers are reluctant to buy animals with no history due to food safety and quality concerns. The KLMC system benefits livestock buyers, sellers and consumers by improving the integrity of the market process in the trade of livestock and livestock products."*

– Dr. Joseph Mugachia,  
Manager, Gardenvet, KLMC Implementation Partner

Like many farmers in Kenya's north rift region, Wesley Too and his two sons rear cattle both for subsistence and income generation. Too, a board member in one of the dairy cooperatives in Nandi County, has been involved in dairy farming and livestock trade for decades working alongside his sons to grow and improve their herds. With over 20 head of cattle, the trio has for a long time faced challenges in improving the breed quality to maximize productivity, accessing relevant and timely government-run extension services and engaging in profitable livestock trade.

"We've realized that the challenges we face in our livestock enterprise stem from lack of proper records, animal identification and history," says Too. "At a cost of only three hundred shillings per animal (\$30), we've discovered an affordable solution to fix this problem permanently," he adds.



The solution to Too's woes came in the form of an innovation from Kenya Livestock Marketing Council's (KLMC) known as the Livestock Identification and Traceability System (LITS). With seed funding and technical assistance from USAID through Feed the Future Kenya Innovation Engine, KLMC has developed LITS from concept to market to provide much-needed solutions to livestock farmers and pastoralist communities in Kenya.

The innovation involves registration of animals on a central database. Each registered animal is marked and traced using a tamper-proof tag with a county-based code that matches the animal's identity on the database. The searchable database contains all relevant livestock information such as animals' identification numbers; their age, sex, breed, color; extension and veterinary services received; name and contacts of their owners, and the name of their location or source markets. Each registered animal is marked and traced using a tamper-proof tag with a county-based code that matches the animal's identity on the database.

The innovation offers many benefits to livestock industry stakeholders. At the county government level, the LITS database streamlines and informs decisions on the nature of government-led outreach and extension services for livestock, enhances security by deterring livestock theft and supports disease surveillance and control to minimize the spread of trans-boundary animal diseases.

By providing useful information about animal history, the LITS innovation also benefits livestock farmers by raising the commercial value of their animals, expanding their access to local and export markets, decreasing the threat of theft or disease to livestock and providing animal records that can be used to inform decisions such as animal breeding.

"LITS is increasingly becoming a key global requirement for livestock trade especially for export and many international buyers are reluctant to buy animals with no history due to food safety and quality concerns," says Dr. Joseph Mugachia a veterinarian from Garden Veterinary Services Ltd (GardenVet), a firm partnering with KLMC to roll out the innovation. "The KLMC system benefits livestock buyers, sellers and consumers by improving the integrity of the market process in the trade of livestock and livestock products" he adds.

"Traders are offering significantly better prices for tagged livestock because they can track ownership and the medical history of the livestock, allowing them to appropriately value the animals. Our reports so far indicate that a tagged bull, for example, can be worth up to double the price of an untagged bull in export markets," says Abdullahi Gulleid, the LITS innovation champion at KLMC. In Turkana County the innovation not only reduced cattle rustling in the predominantly pastoralist communities but has also led to an average of seven to 10 percent increase in the sale value of tagged animals.

The LITS innovation is being rolled out in Turkana, Isiolo, Nandi, Kericho, Uasin Gishu, Embu, Nakuru, Nyeri, Muranga, and Kirinyaga counties. So far, **over 33,000** livestock have been tagged and the innovation is directly benefiting over **5,500** people.

"All our herds are now tagged and registered on the KLMC system with complete histories that will now enable us to increase productivity by improving herd quality, access better markets for our produce and keep track of health services given to our animals," says Too.

## 4. INCREASED INVESTMENTS IN AGRICULTURE AND NUTRITION RELATED ACTIVITIES

KIE-supported enterprises cultivated a total of 50 partnerships with a wide range of entities – financial service providers, impact investors, county governments, and private sector players like product distributors and others thus expanding their reach in numerous geographies and resulting in increased sales and revenues.

Partly as a result of improved business systems and strategies in place following KIE's tailored technical assistance, at least 70% of program-supported enterprises have attracted investments to the tune of

more than KES 820million (\$8.2million) to grow and further scale the respective innovations. The investments are drawn from a spectrum of companies ranging from international I.T. giant Microsoft Corporation Inc. and renowned local telecommunications company Safaricom Ltd., to local banks and agribusiness firms. About 36% of this investment is in the form of equity financing while loans amount to 23% of the total funds leveraged, an indicator that these enterprises are now attractive to private sector investors. (See success story: iProcure Ltd).



### SUCCESS STORY



## iPROCURE Ltd: Social Enterprise Draws \$2M in Investments

In 2012, two young entrepreneurs co-founded an I.T.-based last mile distribution company to help smallholder farmers in Kenya access quality essential inputs for better productivity. So how did the little-known social enterprise attract more than Sh120million (\$1.2million) in investments, barely four years after inception?

Stefano Carcoforo and Nicole Galetta quickly realized that access to affordable inputs is a challenge for smallholder farmers across sub-Saharan Africa. Due to a broken supply chain farmers in rural locations are forced to travel long distances and incur steep transport cost in order to purchase inputs, they often have to pay in excess of the recommended retail price

*"What if supply chains worked well? What if farmers could concentrate on the business of farming, rather than chasing inputs from various suppliers? These questions drove us to set up the business."*

– Stefano Carcoforo



Photo Credit: USAID/Feed the Future Kenya Innovation Engine

► iProcure Co-Founder and MD Stefano Carcoforo Nicole Galetta with Cabinet Secretary for Agriculture, Livestock and Fisheries Hon Willy Bett and USAID Kenya and East Africa Mission Director Karen Freeman during the launch of Stage 2 innovations in May 2016.

(RRP) due to fewer options and are forced to buy 'what is available' at the store and not the specific input they are looking for. This significantly compromises farm productivity and in turn negatively impacts producers' livelihoods perpetuating poverty.

In true entrepreneurial fashion, Stefano and Nicole began by asking questions. "What if supply chains worked well? What if farmers could concentrate on the business of farming, rather than chasing inputs from various suppliers? These questions drove us to set up the business," said Stefano.

iProcure's solution consists of a web and mobile platform "iProcure" that is freely deployed to cooperatives i) to serve as an ERP for managing their daily business activities whilst also ii) aggregating farmer demand for inputs and assessing their ability to pay for them. Inputs are then sourced directly from various local manufacturers, and delivered to stocking points that are close to the farmers. iProcure thus ensures that costs are kept low by shortening the supply chain and passing on manufacturer discounts to farmers.

"Initially, we funded iProcure using our own capital but this was not enough to make us fully operational," Stefano said. "We tried several investment avenues for the first year without much success," he added.

USAID's 2014 solicitation for innovations via its Feed the Future Kenya Innovation Engine program was just what the start-up company needed. Stefano and Nicole wowed the investment advisory panel, snapping up a seed funding and technical assistance award.

The Sh5.9 million (\$66,159) seed funding, combined with technical assistance designed to strengthen the company's internal processes and systems, enabled iProcure launch its operations in Kenya's semi-arid Makueni County. Within a year, the company had surpassed targets to serve over 2,000 farmers.

Having successfully proved that the concept was feasible, iProcure qualified for the next round of USAID funding under the Kenya Innovation Engine program. In 2016, USAID awarded iProcure Sh38.8M (\$381,104) to roll out the innovation to markets in Meru, Uasin Gishu, Nandi, Bomet, and Kericho Counties.

With over 20,000 farmers accessing inputs through iProcure, working with over twenty (20) cooperatives, and with an ever growing demand for their services, iProcure has been able to prove that their concept is market driven and their business model can be replicated to wider geographies.

The impressive impact among its customers has lent credence to the once start-up and strategically positioned Stefano and Nicole to approach other investors for additional funds to grow iProcure.

Their efforts have borne fruit and in 2016, iProcure attracted over Sh120 million (\$1.2million) from four investors. 2017 saw the company sign on a USD 1Million partnership with Safaricom to implement the Digifarm project. The tripartite project will offer farmers convenient access to discounted quality inputs, available from iProcure, a digital learning platform delivered by Arifu, and integrated financial services such as M-PESA, Lipa na M-PESA, and M-Shwari from Safaricom.

"USAID's investment in the company when it was a fledgling start-up contributed significantly to our continuing success," said Stefano.

"Our close association with the reputable USAID brand helps make us an investment-worthy company, and gives investors' confidence that we are a good bet," he added.

## 5. ENHANCED ENTERPRISE DEVELOPMENT

### Organizational development

Customized technical assistance positioned KIE-supported enterprises to make a lasting impact in the sector that will outlive the program. For example, as a result of business planning technical assistance, Wanda Organic's business was split into three units for enhanced organizational efficiency. Hands-on management at the firm has limited staff attrition for the award implementation period.

### Commercialization of new technologies

- ④ KIRDI is partnering with program awardee KEMRI to process papaya fruits into jam and juice. The jam is already available in the market. KEMRI is accumulating papaya seed - the by-product for

future use in preparing UjiPLUS, KEMRI's innovative school meal with deworming properties.

- ④ With KIE's support, Maseno University successfully tested the efficacy of four new disease-resistant and high-yielding maize seed varieties. In September 2017, the University initiated discussions with the southern Africa's leading producer and marketer of certified crop seeds (<http://seeds.seedco.co/kenya>) Agri Seed Co Ltd with the view to license the company to commercialize two of the new varieties named Maseno EH14 and Maseno Sukari. In September 2017, Maseno University received a grant valued at \$193,963 to commercialize the two varieties with a private sector player. (See case study: *Maseno University commercializes new seed varieties*).



## CASE STUDY



## Maseno University Commercializes New Seed Varieties

### State of business and innovation at award stage

Maseno University had developed new and resilient maize hybrid varieties that were not only high yielding, but also resistant to Striga weed and foliar diseases which needed to be commercialized.

### Nature of KIE intervention

With seed funding and technical assistance from the Kenya Innovation Engine, the University from the Kenya Innovation Engine (KIE) developed the Maseno Seed Unit, which is housed in the School of Agriculture, to enable it develop and deliver to market, quality certified seed of the hybrid maize varieties.

### Achievements

- Demand for the seeds among farmers in the region.** Through on-farm trials, the technologies have won wide acceptance among smallholder farmers across the Lake Victoria Region and beyond.



▶ Maseno University Innovation Champion Prof. Dida during a field visit with KIE in 2015.



- b) **Regulatory approval for four three maize varieties for commercialization.** Kenya Plant Health Inspectorate Services (KEPHIS) released three Maseno University regulatory approval for several maize varieties (see table below) ready for commercialization, One more is scheduled for release in 2018<sup>16</sup>.
- c) **Commercialization of the seed technologies.** Initiated discussions with Agri Seed Co Ltd, a private seed company, to commercialize Maseno EH14 and Maseno Sukari. This will lead help provide a reliable income stream to Maseno University's Seed Unit thus contributing to enhanced capacity of the enterprise.

#### Key next steps for the Maseno Seed Unit

Maseno University Seed Unit needs to strengthen its internal systems. There is need for a refined business and operational plan which captures and supports the execution of core business priorities. This will include

- a) **Organizational structure and human resource plan:** MU's plan must clearly capture the optimal structure, roles and level of autonomy for the Seed Unit's operation within the University
- b) **Commercialization plan:** Maseno University must develop a detailed approach to commercializing its seed varieties which includes key activities and milestones.

### Development of spin-out companies

NGOs and research institutions within the KIE portfolio realized and appreciated the importance of commercializing their innovations. This led them to register limited liability companies to effectively scale their respective innovations.

- ⦿ On the business side, **KEMRI established a spinoff company, Nutraceuticals Kenya Ltd (NKL)** to oversee production marketing, sales and distribution of innovative school meal with deworming properties UjiPlus® in partnership with several private and public sector entities.
- ⦿ Agricultural Mechanization Hubs innovator Kenya Network for Dissemination of Agricultural Technologies (KENDAT) **established a new private business – Agrimech Africa Ltd** to sell services directly to farmers instead of engaging and training service providers as originally envisioned. *See case study: Kenya Network for Dissemination of Agricultural Technologies (KENDAT) shifts business model and establishes new private business.*
- ⦿ On its part, Arid Lands Information Network (ALIN) established **Sokopepe**, a new social enterprise, to implement its Farm Records

Information Management System (FARMIS) innovation. Sokopepe collects data from farmers on aspects such as crop yield, the costs of inputs, and selling price and helps them to maintain proper records thereby encouraging them to run farming as an enterprise and even access financial services from formal institutions. For instance, ALIN referred FARMIS-registered farmers to Jenga Kenya - a micro finance organization where farmers could procure phones and energy-saving jikos (stoves) through loan financing in an effort by Sokopepe to demonstrate that access to finance is possible as a result of farm record-keeping. Other FARMIS-registered farmers enrolled and started saving with Times U Sacco.

Sokopepe and Kilimo Biashara<sup>17</sup> have an informal partnership arrangement with the aim of establishing a joint working programme in which Sokopepe will introduce Kilimo Biashara to three lead farmer groups to be trained in financial literacy as the basis for the partnership. FARMIS-affiliated farmers will benefit from the training, while Kilimo Biashara will tap into Sokopepe's farmer groups to expand the program's outreach on financial literacy training.

<sup>15</sup> Maseno EH10 is resistant to most foliar diseases prevalent in Western Kenya; Maseno EH12 and Maseno EH14 are both tolerant to Striga weed (*S. hermomthica*) and Maize Streak virus, Turicum leaf blight; Maseno Sukari is sweet and good for use as green maize.

<sup>17</sup> Kilimo Biashara is a project implemented by a consortium composed of Coop, CARE (Denmark and Kenya) and Kenyan vegetable producer and exporter Sunripe Ltd. to create a connection between the farmers and the market.



# Kenya Network for Dissemination of Agricultural Technologies (KENDAT)

## State of business and innovation at award stage

Over the years, KENDAT has been involved in improving the use and management of animal transportation (including draught power) and labor for agriculture in Kenya. Use of animal draught power in agriculture has become less effective, given the need for higher yields, and more efficient systems of production, hence the need for agricultural mechanization – the focus of KENDAT innovation.

## Nature of KIE intervention

In this Stage I, proof of concept grant, KENDAT established a mechanization hub in Meru County to provide mechanization services to both small and medium scale farmers. The mechanization hub is a center of excellence equipped with the machinery and equipment necessary for agricultural mechanization (e.g., tractors, ploughs, seeders, mowers etc.), and acts as a “one stop shop” for agriculture mechanization services and training.

## Achievements

With the Stage I proof of concept seed funding,

- i) KENDAT established a mechanization hub and identified a model farmer in Meru County to provide mechanization services and training to both small and medium scale farmers. A total of **254** farmers (with a total of **505.78** acres) received the services in the County.
- ii) KENDAT learned and shifted their business model—instead of engaging and training service providers (as originally envisioned), KENDAT started to directly sell services to farmers, and established a new private business—Agrimech Africa Ltd.
- iii) KENDAT established farmer business clusters based on farmers’ geographical location. The clusters mobilized farmers’ demands for mechanization services and hire scheme, helped grow partnerships with the private sector and county governments, mobilized farmers own financial resources and ultimately initiated table banking amongst their members.

## Key next steps for the KENDAT innovation

1. Increasing the operational capacity of the mechanization hub for optimal service delivery by increasing the mechanization equipment to meet the farmers’ demand. Currently, the demand for services outstrips supply which means loss of business for KENDAT
2. Establish new hubs in other regions to grow the business by serving more farmers.
3. Opt for equipment leasing instead of buying to be able to roll-out the services to many regions as well as build the business.
4. Support and handhold SACCO formation by farmers by offering further training and walking the process with them until the SACCO is fully operational.

## 6. INCLUSIVE GROWTH

A number of KIE innovations addressed the issue of smallholder inclusion in their product offering. This resulted in smallholders accessing finance, insurance, savings and developing their cash flow statements as they applied these innovations.

- ④ Amtech Technologies' EASYMA 6.0 has facilitated **financial inclusion for farmers** working with cooperatives that have adopted the innovation. At least seven SACCOs (affiliated with adopting cooperatives) are actively using the innovation and rely on farmer records generated from the chilling and processors plants to conduct business. Additionally, EASYMA 6.0 - developed with support from USAID via the Innovation Engine - provides an improved user interface and added functionalities such as a module for livestock and farmer insurance. *(See success story: Amtech Technologies' EASYMA 6.0 helps farmers access financial services)*
- ④ Over 11,000 farmers now have an insurance policy as a result of their interaction with KIE-supported enterprises – nearly 2,500 have livestock insurance against weather-related problems, while more than 16,500 have a savings account through Amtech Technologies' EASYMA 6.0 system. In addition, EASYMA 6.0 enables members to access health insurance through the NHIF scheme thus facilitating access to healthcare.

### Increased employment opportunities

Through its awardees, KIE has increased employment opportunities, with a total of 6,055 jobs created by project-supported enterprises at the business and farm level.

### Gender and youth inclusion

A total 37% of the jobs created through the program's activities are held by women, while up to 40% are held by youth. KIE ensured that women,

men and youth participated in project activities so that all benefit from the supported innovations. About 51% of the total 135,870 farmers trained are women, 47% of whom adopted the new innovations.

- ④ It was observed that women's participation differed by innovation, and depended on the complexity of the innovation and level of resources required to adopt.
  - In value chains such as tomato production in which initial farming investment requirements are relatively high and production is labor intensive, adoption for Kenya Biologics' tomato pest management innovation Tutrack® was higher among men and youth than women.
  - For crops such as cabbages and potatoes where only a small portion of land is required, uptake for innovations such as Wanda Organic's Plantmate Organic Fertilizer Lachlan Ltd.'s Viazi Power potato fusion farming technology was higher among women.
  - Adoption was also higher among women for innovations such as ALIN's farm record-keeping system, which requires patience and discipline to consistently maintain records. At only Kshs. 500 (\$5) the initial financial outlay required to purchase the record-keeping book as part of subscribing to the innovation is also affordable and payable in small installments, thus encouraging participation by women.
  - KIE-supported awardee Indicus E.A. Ltd. also made deliberate efforts to attract women for its innovative Artificial Insemination (A.I.) training program. Overall, 15% of the total 200 trained A.I. providers in this typically male-dominated industry are women, all of whom are currently practicing.



**6,055**

Number of jobs created by project-supported enterprises at the business and farm level through the KIE awardees.



**>11,000**

Number of farmers who now have an insurance policy as a result of their interaction with KIE-supported enterprises.



### Financial Inclusion for Vulnerable Nomadic Communities

*“Without the insurance, I would have had to uproot my family from here when the drought hit.”*

– Fatuma Abdul\*

\* name changed to protect identity



Photo Credit: USAID/Feed the Future Kenya Innovation Engine

▶ A woman receives a payout from Takaful staff in Saredho village, Dadaab County.

Pastoralists, who constitute about 15% of Kenya’s estimated 45 million people, are particularly vulnerable to the adverse effects of climate variability and change. Livestock are the primary source of income and food security, and increasingly intense droughts deprive animals of food and water. This places the households in an increasingly precarious position; the recurring shocks perpetuate poverty here.

But, in areas where Takaful Insurance of Africa (TIA) is rolling out the index-based livestock insurance innovation, the story is markedly different. Here, policy holders of Takaful’s sharia-compliant insurance product are confident that their livelihoods are assured, even in the worst of dry spells.

While Fatuma Abdul’s\* herd of 10 sheep and goats may seem small, it means the world to her and her young family in Central Isiolo. By selling milk and animals as need arises, Fatuma can meet her basic household expenses, as well as feed, clothe and educate her children.

With support from USAID through its Feed the Future Kenya Innovation Engine program, Takaful in partnership with the International Livestock Research Institute (ILRI), is rolling out the Index Based Livestock Takaful (IBLT) in Wajir, Garissa, Marsabit, Isiolo, Tana River, and Mandera Counties.

This one-of-a kind asset protection product is designed to protect against forage scarcity as a result of drought. ILRI uses satellite imagery to deliver reliable, real-time forage availability and loss information. This information is then indexed and when forage cover in an area (weather division) falls below the 20th percentile, this asset protection policy kicks in to provide compensation to beneficiaries, with which they can purchase forage and keep their animals alive before the next expected rains.

The pay-outs enable farmers to purchase fodder for their animals, and thus preserve their herds.

“Without the insurance, I would have had to uproot my family from here when the drought hit,” said Fatuma.

Since the KIE award in 2016, Takaful has reached more than 7,000 farmers who insured over 10,000 TLU’s, and paid a total of KES 12,071,062 (USD 120,000) in premiums with a sum assured of KES 80 million (USD 740,000). The value of payouts now stands at over KES 37 million (USD 370,000).



## 7. ENTERPRISE SUSTAINABILITY

KIE's overarching goal was to nurture as many enterprises as possible to sustainability. One of the key indicators of sustainability is the financial standing of an enterprise on both its balance sheet and income statement.

- **Kenya Biologics Ltd. has demonstrated sustainability with stable financial structures facilitative of business growth.** The company is already making profit from the sale of Tutrack.

Furthermore, the company has attracted equity investment from Elephant Vert, a European company - currently a minor share-holder in Kenya Biologics Ltd., but interested in acquiring 90% stake. This indicates robust financials and projections, which have led to high scores in due diligence to inform investment. (See case study: *Kenya Biologics Demonstrates Financial Sustainability*).



### CASE STUDY



Kenya Biologics Ltd

## Kenya Biologics Demonstrates Financial Sustainability

### State of business and innovation at award stage

Kenya Biologics developed a product (Tutrack), specifically tailored for the African market, to control the *Tuta absoluta* a devastating and invasive tomato leaf miner. This product uses pheromones to trap the pest before it can do damage to tomato crops. It is cheap, effective and easy to use for smallholder farmers whilst also being environmentally friendly.

### Nature of KIE intervention

The KIE Stage 1 seed funding amount was used to support Kenya Biologics i) develop prototypes of the trap, conduct on-farm field trials and design a trap for commercial production; ii) register the trap with the Pest control Products Board (PCPB); iii) market and sell Tutrack by recruiting and training sales representatives. The Stage 2 seed funding amount supported the business to: i) Increase marketing and sales to at least 4,500 farmers in Feed the Future (FTF) counties, ii) develop in-house capacity to produce lures, traps and sticky paper in order to decrease costs and allow easier adjustments to product design to better meet smallholder farmers' needs.

### Achievements

- a) **Registration of Tutrack by the Pest Control Products Board** as a pest control product complete with a commercial label.
- b) **The efficacy of Tutrack was ascertained among over 7000 farmers** who bought and used the traps across 22 counties; with many of these farmers experiencing yield increases upward of 50% and declaring they will return to full scale tomato production.
- c) **Kenya Biologics Ltd. has a practical and achievable marketing and sales strategy.** In the company business plan, Kenya Biologics Ltd. has diversified its customer base by reaching more smallholder farmers, in addition to the existing customer base of medium and large scale farmers. Kenya Biologics Ltd. has also started exporting to other African countries (e.g. Nigeria, Zambia, Botswana,

Zimbabwe, Tanzania and Uganda). Regarding launching new products, Kenya Biologics Ltd. plans to leverage on its current product portfolio.

- d) **Kenya Biologics has demonstrated financial sustainability.** Between January and August 2017, Tutrack sales have exceeded KES 9,000,000. This is above the initial forecast of KES 3,300,000 for 2017 and well on the way to achieving the revised forecast of KES 10,177,413. With these sales numbers, the company is already making profit from the sale of Tutrack.
- e) **Kenya Biologics Ltd.'s financial structures are stable and facilitative of business growth.** The company has attracted equity investment into the business from Elephant Vert, a European company, currently a minor share-holder in Kenya Biologics Ltd., but interested in acquiring 90% stake. This indicates robust financials and projections that enabled due diligence.

### Key next steps for Tutrack and Kenya Biologics

- a) **Strengthening distribution of Tutrack by using a mobile application platform.** The application has been developed and has capabilities for farmers to order and track their orders, make payments and receive extension services. Growing the business in Kenya.
- a) **Growing international market.** There is growing need for the product in several African countries. Advisedly, these efforts should leverage the strategic partner, Elephant Vert's, footprint in Africa.

➤ **iProcure is operationally and financially sustainable and investment attractive.** The company's income has grown commensurate with the number of cooperatives and depots using iProcure's last mile distribution software. Between January and December 2016, iProcure's revenues surpassed the **Sh80 Million (\$80,000) mark**. The company's profits have been reinvested into the business to fund an ambitious growth and expansion plan. iProcure's ability to attract and utilize various types of investments including equity, loan and grants has contributed to the financial sustainability of the company.

➤ **Amtech Technologies is financially stable and investor attractive.** Amtech is financially stable and already posting profits as a result of revenues from service subscription fees and payment for accessing farmer information and individual transactions. A number of organizations have expressed interest in partnering with the company on a grant and equity funding basis. By September 2017, Amtech Technologies was in the final stages of negotiating a Memorandum of Understanding with Visa, and Radio Africa, Melken for a possible Sh50million (\$500,000) equity stake. By this time, the company had already entered into a partnership agreement with Microsoft for grant funding.<sup>18</sup>

<sup>18</sup> Microsoft offered to host Amtech Technologies' data on the cloud at USD 2,000 per month for a period of 24 months at total grant value of USD 48,000 (KES 4.8 million).



Photo Credit: Sylvia Maina/USAID Feed the Future Kenya Innovation Engine

## LESSONS LEARNED

1. **Value chain partnerships:** Innovative solutions are more likely to succeed where smart partnerships are fostered across the agricultural value chain. Enterprises need to identify key actors within the value chain and develop synergies that complement their activities. This results in effective, efficient and organic enterprise growth.
2. **Seed funding:** When disbursed in the form of milestone-based risk capital, seed funding is instrumental in accelerating market-oriented development objectives. This disbursement system created a strong sense of accountability and helped to fight a “gratuity mindset” from taking root among entrepreneurs.
3. **Incubation period:** Seasonality and climate change had an adverse effect on the implementation and market reach for most agricultural innovations. The project realized the need for **longer testing and incubation periods** (at least two rain seasons), and the need to **synchronize innovation approval** to the respective seasons/crop /activity cycles.
4. **Identifying and promoting highly-strategic private-public partnerships** could be the best approach to effectively supporting the development, testing and scaling of innovations from non-business oriented institutions such as NGOs, academia and research institutions.
5. **Sound policies and an enabling ecosystem** remain critical for agricultural innovations to effectively scale.
6. **It takes time to realize impact** in agricultural innovations, mainly due to the challenges of climate change, seasonality and investment in ground-level mechanisms to reach and gain smallholder trust.
7. **Empirical data is invaluable** as evidence of enterprise growth and sustainability.
8. **Short term technical assistance provides a much-needed leg up for small and growing enterprises:** Most innovators indicated that the business development services received under the project were invaluable and informed their business structure, systems, policies and strategies.

# FUTURE OUTLOOK

The above results and achievements, which also speak to business turnovers, investment attractiveness, strategic partnerships and competitiveness of KIE-supported enterprises, present a clear trajectory to sustainability and scale.

## SUSTAINABILITY

With sustainability as one of the key intended outcomes of the Kenya Innovation Engine's design, all project activities were geared towards achieving this. As such, the program applied a blend of financial

and technical assistance to buy down business risk and supporting innovations that prove a business case through repeat and increased purchases. This resulted in enterprises gaining relevance in the sector and collaborating with other value chain players.

As part of its coaching and short-term technical assistance component, KIE also worked closely with innovation champions to build institutional and entrepreneurial capacities, an integral part of which entailed collaborating with various county governments, other U.S. Government-funded projects and key sector stakeholders.

COUNTY COLLABORATION	
County	Collaboration with
Bomet	iProcure, Lachlan, Amtech
Meru	ALIN, Lachlan, Wanda, iProcure, Kenya Biologics
Nandi	KLMC, Indicus, iProcure
Kericho	KLMC, Indicus, iProcure
Taita Taveta	Kenya Biologics
Homa Bay	Wanda, Kenya Biologics
Machakos	Kenya Biologics, Wanda, iProcure
Uasin Gishu	KLMC, Indicus, iProcure
Isiolo	KLMC, Takaful
Garissa	KLMC, Takakful
USG-funded project collaboration	
Project	Collaboration with
Feed the Future Kenya Accelerated Value Chain Development program (AVCD)	Indicus, Takaful
Kenya Agricultural Value Chain Enterprises (KAVES)	Wanda Organic, Kenya Biologics
Resilience and Economic Growth in the Arid Lands—Accelerated Growth (REGAL-AG)	Takaful
Kenya Semi-Arid Livestock Enhancement Support (K-SALES) Project	iProcure
Financial Inclusion for Rural Microenterprises (FIRM)	Wanda Organic, Caytree Partners
Sector Organizations	
Organization	Collaboration with
Heifer International	Amtech, iProcure
Meru Greens Horticulture Ltd.	Wanda Organic
Kenya productivity and Agribusiness Project (KAPAP)	ALIN, Kenya Biologics, Wanda, iProcure











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## FEED THE FUTURE KENYA INNOVATION ENGINE

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The U.S. Government's Global Hunger & Food Security Initiative