

## Case Study: M3 – Empowering Farmers to Report Low Quality Seed to Regulators

For far too long, farmers in Africa have been largely powerless when they discover that the seed they have purchased and planted is not what they expected. Mulika Mbegu Mbovu (Stop Bad Seed, or M3) is a farmer empowerment tool that allows farmers in Kenya to register complaints with the national regulator about fake and low quality seed.

### Introduction

According to the Kenya Constitution every Kenyan has a right to food. High quality seed is essential for achieving adequate food supply to the Kenyan population. High quality seed must meet minimal germination standards and be free of seed borne diseases, genetically pure, and free of any foreign matter.

Food security in Kenya remains a distant goal. More than 43 percent of the country's population is food insecure, and about 46 percent live below the poverty line.<sup>1</sup>

#### The right to food

*“According to the Kenyan Constitution under Article 43 (1) (c) every person has the right to be free from hunger and to have adequate food of an acceptable quality.”*

*The Food Security Act, 2017*

Largely due to population growth and low investment in increasing agricultural production of staple food crops, Kenya has gone from being food self-sufficient in 1961 to import-dependent today.

Over the last two decades, crop production increases in Kenya have been driven by expansion in the area planted while yields have largely been stagnant or even decreased for some crops. With urbanization growing rapidly, there has also been pressure on agricultural land resources, further threatening the achievement of food security.

With the above dynamics, it is more important than ever – in Kenya but also across sub-Saharan Africa – that farmers are assured of planting high quality seed when they purchase certified seed.

### The problem/challenge

Kenyan farmers depend on seed certified by Kenya Plant Health Inspectorate Service (KEPHIS), a government regulatory authority. However, despite stringent certification protocols Kenyan farmers still risk purchasing low quality or counterfeit seed. At any point along the value chain, from seed production to certification to storage to distribution, seed quality can deteriorate. For example, if stored improperly after certification at either the seed company or at an agrodealer shop, the seed will lose viability. Coupled with the possibility of finding actual counterfeit seed in the market – usually, grain that is colored and packaged to look like seed – farmers can risk their potential harvest while believing that they are buying good quality certified seed.

In the past, when farmers were disappointed by the purchase of sub-standard or counterfeit seed, they had little effective recourse. While they were encouraged to return to the agrodealer with the original packaging, there was no systematic way for farmers to raise the alarm about low quality or counterfeit seed in the market.

***Agri Experience and KEPHIS discussed this challenge and decided to try to empower farmers to speak up and provide feedback during the season on specific seed quality-related complaints. This would enable***

<sup>1</sup> Food Security & Crop Seed in Kenya (Part 1): Challenging Trends We Cannot Afford to Ignore, 2015

**KEPHIS to investigate patterns of complaints that merited urgent attention, and alert seed companies to high levels of complaints.**

**The starting point**

Kenya has two primary categories of farmers. The first category is large scale farmers who farm major parcels of land and are relatively well educated. These farmers are typically already using high quality inputs, have good access to the market, and have recourse to seed companies if they find they have planted low quality seed. They purchase their seed directly from seed companies in large volumes of 10 kg bags or more and, due to their influence and purchasing power, are generally given the best quality seed.

On the other hand, most land in Kenya is still owned and cultivated by medium and smallholder farmers with less than five hectares. These farmers often retain a large percentage of the food they produce for home consumption, have poor access to the market, and buy certified seeds in small packs of up to 2 kg, if they are purchasing certified seed at all. These farmers buy certified seed from last-mile distributors/agents, agrodealers, or unregistered shops (*dukas*). Historically, a material number of these seed sellers do not handle or store seed properly, may sell seed for which the certification has expired, and/or trade in counterfeit seed. Farmers frequently bought this seed, not knowing that it was unlikely to perform as expected.

While scratch off labels in use in Kenya provide the opportunity for a farmer purchasing certified seed to know if it is genuine and has been certified, the only way that a smallholder farmer knows whether or not the seed she has purchased is truly viable is to plant the seed and carefully watch it during the growing season, observing germination, vigour, and purity. However, if a problem is detected, it is usually too late to get new seed and replant. The season is lost.

In addition, in the past many seed distribution “cheaters” – either counterfeiters or knowing purveyors of low quality seed – felt relatively comfortable that they would not be connected to selling sub-standard seed during the hustle and chaos of the planting season, even if the farmers who had been cheated did manage to return to the sales point to complain.

While KEPHIS worked hard to accurately certify seed, these other factors impacting the quality of seed planted by farmers was a concern to KEPHIS. They decided that they wanted to amplify the volume and timing of farmer feedback on seed quality in order to be able to identify the challenges in the market as they arose. In addition, with field staff resources stretched tight, KEPHIS saw two key potential benefits hearing directly from farmers: 1) accurately targeting the location of problems based on information coming directly from farmers – making the proverbial search for the “needle in the haystack” much simpler, and 2) providing a potential deterrent to both suppliers and distributors of low quality and counterfeit seed.

At the inception of the Kenya Markets Trust (KMT)<sup>2</sup> interventions in the crop seed sector in 2013, low quality and counterfeit seed were widely acknowledged to be a major challenge in Kenya. There was no formal estimate of how big the problem was, but in neighboring Uganda, a formal study had estimated that as much as 40% of seed on the market was sub-standard. Estimates in Kenya generally ranged as high as 20%, and sometimes higher, but fluctuated with seasons and the interest of counterfeiters, particularly when demand for particular varieties was high and supply was low.

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<sup>2</sup> [www.kenyamarkets.org](http://www.kenyamarkets.org)

The journey to a viable solution spanned seven years, and covered trial and error, missed seasons, tough lessons about technology, and a great deal of learning about farmer behavior. The highlights are outlined below.

### Journey to a solution: 2013 - 2016

In 2013, Agri Experience Limited<sup>3</sup> was selected to implement a five-year plan for interventions in Kenya's crop seed sector undertaken by KMT's Market Assistance Program (MAP) project. A key goal of this work identified by Agri Experience was to develop a feedback mechanism related to farmers' seed quality experiences.

After conducting background research on farmer feedback loops, meeting with farmers and other stakeholders, and discussing the planned approach with KMT, Agri Experience decided to undertake several different pilots to explore potential solutions. The pilots were based on using a radio campaign to encourage farmers to use a free SMS service to "report bad seed" to their county government if they realized after planting that their seed was not good quality.

In collaboration with the County Ministries of Agriculture in six counties, Agri Experience conducted four pilots utilizing two different SMS technologies in 2015 and 2016. The first SMS technology was a shortcode<sup>4</sup> while the second was a Safaricom "golden number"<sup>5</sup> which farmers could use to register their complaints. Both technologies were connected to a web-based data management system.

Other pilot variables were:

- the nature, scope and timing of the promotional radio campaign;
- the use, or absence of, other promotional activities such as flyers, sending bulk SMS, and promotion at barazas;
- the questions asked of farmers via the SMS messaging system;
- the order of the questions asked through the SMS tool; and
- the timing of the campaign.

In addition to conducting the pilots, Agri Experience contracted a study to understand at a granular level whether or not farmers had heard the radio campaign, had used the SMS service or not used the service, and if not – why. In addition, the study sought to understand how many farmers had experienced a seed quality problem, irrespective of whether or not they had reported it.

Many lessons were learned through these pilots, but in 2016 KMT changed the focus of their seed work and decided not to continue funding a number of initiatives including the farmer feedback loop related to seed quality. Despite this setback, Agri Experience continued to believe strongly in the power of enabling farmers to speak up – both as a positive experience for farmers, as well as a preventative deterrent for both counterfeiters and seed companies that might engage in short cuts – and decided to continue the work independently.

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<sup>3</sup> <https://agri-experience.com/>

<sup>4</sup> An SMS shortcode is a 5-digit number to which an SMS text message can be sent or received but cannot be used for calling.

<sup>5</sup> This is a standard mobile phone number, with the added value that it is an easy-to-remember pattern (e.g. 0727000444)

## Journey to a solution: 2017 - 2020

### **Birth of a farmer empowerment tool**

Based upon the overall success of the four pilots with the counties, and upon deciding to continue supporting farmers to raise their voices about issues of seed quality, Agri Experience approached KEPHIS and discussed the possibility of collaborating on the initiative but at a national level. A meeting was arranged in early 2017 to discuss; 1) key findings and lessons learned from the pilots; 2) possibility of KEPHIS ownership of the farmer feedback loop, with complaints coming directly to them versus to county governments; and 3) the best way of implementing a nationwide farmer feedback loop if there was agreement to proceed.

It was during this meeting that a national farmer feedback mechanism on low quality seed was born and named *Mulika Mbequ Mbovu (Stop Bad Seed in Swahili, or M3 for short)*. KEPHIS agreed to own the M3 initiative with start-up support from Agri Experience for a period of three years.

KEPHIS, in collaboration with Agri Experience, has now implemented M3 nationwide for a period of four years beginning in 2017, with the latest campaign conducted in the long rain season of 2020. A further campaign is planned for the long rains of 2021.

### **Implementation**

M3 uses a shortcode “22210” for farmers to communicate their issues. The shortcode is mapped to Safaricom and connected to a data management system managed by a service provider. The system uses a survey-based methodology to collect information from farmers on their experience with low quality seed. The system is activated when a farmer sends the keyword “M3” to the shortcode. A series of questions are then sent back to the farmer to answer.

The system asks farmers about the: 1) type of low quality seed issue they experienced; 2) crop that had an issue; 3) location of their shamba including the county and sub-county; 4) variety they planted; and 5) name of the seed company supplying the seed.

Over the years, KEPHIS and Agri Experience have continued to refine the questions and the order of the questions based on the lessons learned from each campaign. The farmers' feedback is captured on a web-based data management system, and KEPHIS is able to access the system, monitor complaints sent by farmers, and take action as required.

- During various seasons of M3 national implementation various promotion approaches have been trialed.
- Usage of M3 was promoted using two different national Swahili radio stations.
- The ads were aired from four to eight times a day for a period of two weeks.
- The ads varied from a 90-second dramatized/role play ad<sup>6</sup> to 30-second spot ads depending on the chosen campaign.
- The ads were aired at various times during the day from 6 am to 9 pm.

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<sup>6</sup>The dramatized ad was a recorded ad with two farmers (one female, one male) discussing the low quality seed that affected one of them, with information about how to report similar issues using M3. At the end of the discussion, the ad contains a call to action to farmers to report low quality seed to “stop bad seed”.

Over a period of four years, over 16,000 farmers used M3 to report issues related to low quality seed and other challenges they were experiencing. Based on earlier research conducted, it is apparent that there are many more farmers experiencing problems but who do not report them for various reasons such as lack of trust in who is receiving the information. A summary of results is presented in the tables below.

Season	National radio station used	Type of Ad	# of aired ads per day	# of weeks aired	Total air minutes	# of complaint messages
2017 short rain	Radio Citizen	Dramatized role play ad	8	2	3hrs 33 min	6,037
2018 short rain	Radio Citizen	Dramatized role play ad	8	2	3 hrs.	2,167
2019 short rain	Radio Jambo	Spot ad <sup>7</sup>	4	2	28 min	618
2020 long rain	Radio Citizen	Dramatized role play ad	8	2	3 hrs.	8,827

#### Issues reported by farmers

Issues	2017	2018	2019	2020
Poor Germination	52%	48%	40%	37%
Disease or Pest	40%	39%	35%	33%
Broken/Impure Seeds	0%	1%	4%	5%
Pest in the Packet	1%	1%	2%	3%
KEPHIS Sticker	0%	3%	11%	10%
Wrong Variety	6%	5%	5%	4%
Other	1%	3%	3%	8%

\*Issue was not given as an option in this year.

#### Lessons Learnt

##### A. Regulator ownership and collaboration

**The observability<sup>8</sup> of technology determines ownership and collaboration:** During Agri Experience buy-in meeting with KEPHIS, Agri Experience presented Farmer Feedback Loop (FFL) pilot results to KEPHIS and demonstrated how FFL could help the KEPHIS team track incidences of low quality seed. The tangibility of the results made it easy to convince KEPHIS to collaborate and take ownership of the innovation.

##### B. Farmer use of SMS technologies

**Farmers tend to respond to simple questions to which they can personally relate:** Through analyzing how farmers were responding to the system questions, we found out that farmers will respond most readily to questions with which they are very familiar and comfortable. When constructing the system

<sup>7</sup> A spot ad is a narrated, non-dramatized ad, typically 30-seconds long, giving a call to action to report issues related to low quality seed.

<sup>8</sup> The degree to which a technological innovation can be visible and understood by others

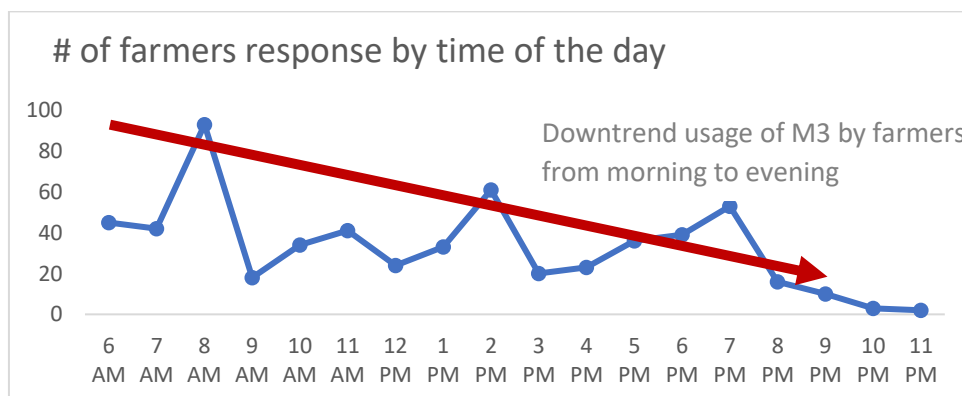
questions, it is best to use words and terms that are very commonly used by rural farmers and avoid scientific terms.

**The number and order of questions determines the quality and volume of the data:** Farmers do not always complete all the questions and the number of responses generally reduces with each subsequent question. It is advisable to keep the number of questions to a low number and start with the most important questions first so that you get the maximum amount of data from the farmers.

### C. Maximizing impact of radio promotion

**Farmers tend to respond more effectively to a dramatized role play ad than a spot ad:** The dramatized ad was typically 90 seconds long, with two farmers speaking to each other followed by a call to action, giving enough time for farmers to relate to the ad and the message being conveyed. The spot ad was a 30 second long call to action to farmers on how to report issues on low quality seed. A 30 second spot ad is arguably too short for a farmer to comprehend and relate to the message being passed to them.

**Majority of Kenyan farmers listen to the radio during the morning hours, lunchtime news (1 pm), and 7 pm news:** When analyzing farmers' responses by time, we found out that there was a downtrend of farmers' usage of the system after the ad had aired in the morning. As shown in the figure below, to get maximum impact radio ads should be concentrated in the morning from 6 am to before 9 am, around the 2 pm news hour, between 4:30 and 7:30 pm.



**Farmers tend to respond well to radio ads on Tuesday, Wednesday, and Thursday:** During the start the weekly radio campaign, farmers tend not to respond to the ad when they hear it, possibly because they are still trying to understand the message and benefit from hearing it many times. Farmers' response rate is low on Saturday and Sunday because those days are days reserved for going to church and radio stations are mostly preoccupied with football programs in the afternoon. Friday is usually a market day in most parts of Kenya and farmers are busy selling their produce or buying produce and are not near a radio .

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
KEY						
High Response		Medium Response		Low Response		

#### D. The regulator's use of the technology

**Regulator uses M3 in decision making:** Data generated from M3 was used by KEPHIS to warn seed companies that were selling poor quality seed to farmers. In 2019 KEPHIS sent out a memo to all seed companies whose varieties had a sizeable amount of complaint from farmers and put them on notice.

**Regulator uses M3 to identify low quality seed hot spot areas:** KEPHIS assigned an intern to monitor complaints from farmers and look for similar patterns that were emerging for a particular variety in a particular county and sub-county. This helped KEPHIS inspectors to narrow down problem hot spots to particular areas. KEPHIS reached out to samples of farmers that had sent their complaints from these areas to investigate their issues. This made it easier for KEPHIS to manage resources in the field and come up with evidence for decision making.

#### E. Stakeholder involvement

**Involve seed company stakeholders from the start:** To gain seed company stakeholder buy-in, it is important to involve them from the very beginning. Before M3 was implemented nationally a meeting was held with all seed production stakeholders to brief them and to discuss how the technology would be used. This built confidence with the seed companies, who were given the opportunity to see M3 as 1) a preventive tool which could even alert them if someone was counterfeiting their seed or an agrodealer was not storing their seed properly, and 2) a tool that could protect the integrity of their industry, rather than a policing tool.

#### F. M3 role as a tool for preventive measure

**M3 has reduced the level of low quality seed in the market:** The introduction of M3 together with the new KEPHIS seed authentication scratch-off labels have been lauded as tools that have reduced low quality and fake seed in the market. In July 2019, during a farmer field day in Embu, the KEPHIS Manager for Quality Assurance stated that M3 and new KEPHIS sticker labels have led to a significant reduction of fake and low quality seed in the market. While this estimate may not be based on hard data, it is very evident that the trend is moving significantly in the right direction. A further benefit of the entire program is that farmers are educated to pay greater attention to seed quality, and to assert their rights as consumers to receive the expected value for their money – a benefit that one can hope will extend to farmers in other countries who are not yet empowered to speak up about low quality or counterfeit seed.

Quote from article in Standard Newspaper, July 20, 2019

## The Standard

### Fight against fake seeds bearing fruit, says Kephis official

By JOSEPH MUCHIRI | July 20th 2019 at 15:14:31 GMT +0300

The fight against fake seeds is bearing fruits due to the Mulika Mbegu Mbaya campaign by Kenya Plant Health Inspectorate Service (Kephis) an official has said.

Kephis Quality Assurance General Manager, Simeon Kibet said the level of fake seeds in the market has fallen from 40 per cent when they started the campaign to the current two per cent.