



Scratch-off Labels for Seed

Introducing an innovative technology empowering farmers to verify the authenticity of crop seed offered for sale in Kenya

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For more information on this report or Kenya Markets Trust, please get in touch:

Kenya Markets Trust,
Rivaan Centre, Wing C, 4th Floor, Muguga Green
P.O. Box 44817 – 00100,
Nairobi, Kenya
Tel: +254 20 2588343
+254 722 201233
Email: info@kenyamarkets.org

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Better Markets, Better Lives

Kenya Markets Trust (KMT) is a Kenyan not-for-profit organisation that specialises in market transformation. We work to stimulate inclusive and resilient growth that will lead to a step-change in the livelihoods of millions of Kenyans. We take a long-term approach, staying true to our vision while adapting to the forces that are shaping the markets we operate within such as climate change and access to emergent technologies.

With regards to our proven results over the years, KMT has produced this case study referencing the work done in the agricultural inputs sector. Specifically, the case study has borrowed significantly from information generated from Seed work implemented by Agri -Experience Limited between 2013 and 2018 through KMT's facilitation.

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Authors: Susan Maina and Pauline Nguni

Edits and Layout: Alex Kandie

In collaboration with



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Introduction

The KMT Crop Seed Sector work formally began in July 2013. At this time, Kenya's crop seed sector had been officially liberalised, although parastatal seed companies still dominated the crop seed landscape, at an estimated 80% market share.

Maize seed was the dominant crop seed product available to farmers in Kenya, although the greatest share of the maize seed market was held by a variety released in 1986, H614, sold by the large parastatal, Kenya Seed Company. This variety was initially developed for the highland agroecology but was routinely being planted by Kenyan farmers well outside of the zone for which it was bred. At the same time, new crop varieties were being released by the Kenya Plant Health Inspectorate Service (KEPHIS), but they were largely maize varieties. As a result, uptake by private sector companies and farmers was relatively slow.

Seed genetics and seed quality are two key determinants of crop yield for farmers all over the world. While a great deal of research has been done in recent decades to bring improved crop variety genetics to farmers in Africa, seed quality is often sub-standard, which means that the genetic potential of the seed is not realized by the farmer who plants it. Furthermore, as farmers increasingly recognize the value of these varieties, demand for seed of improved varieties often outstrips the supply. Sadly, when this occurs, opportunities are created for seed counterfeiters to enter the market, usually with grain painted to look like treated seed, packaged in illegal, counterfeit packaging. Farmers unknowingly purchase this seed, believing it to be genuine, only to learn later that their anticipated harvest will not be realized, jeopardizing their family's well-being and food security.

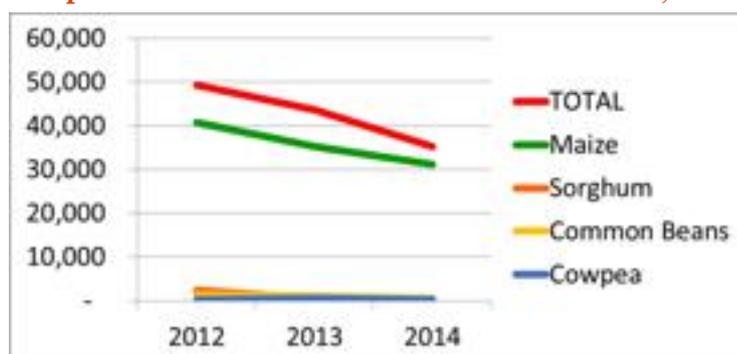


Systemic Constraints

Despite legal provisions to the contrary, Kenyan farmers have long been subject to the risk of purchasing low quality or counterfeit seed. Even though crop seed sold in Kenya is required to be certified by the Kenya Plant Health Inspectorate Service (KEPHIS), the seed can lose quality post-certification (for example, if stored improperly or for long periods at an agro dealer shop), can be erroneously approved for certification, or can be illicitly distributed by a seed company. Counterfeit seed in Kenya has over the years been produced by very sophisticated operators, lured by the opportunity to make quick cash during the rush of the planting season, often working in concert with rogue agro-dealers who agree to sell the counterfeit seed. Stemming the tide of low quality and counterfeit seed in Kenya was proving to be problematic for both seed companies and KEPHIS.

The volume of crop seed certified each year (the best proxy available for crop seed availability) was on a fairly steep decline. 2013 and 2014 total volumes had dropped by 12% and 19%, respectively, as compared to the previous years. This did not bode well for seed availability to Kenyan farmers, as ramping up seed volumes cannot occur overnight, and there was no industry-wide tool to verify seed authenticity, expiry and certification.

Crop Seed Certification Volumes 2012-2014, mt



Fake Seeds Alarm Raised

Daily Nation,
May 8, 2014

“Unscrupulous business people are siphoning millions of shillings from farmers by packaging uncertified maize seeds in a racket that is threatening to undermine food production and leave the country vulnerable.

The problem has been compounded with lenient punishment meted out to fake seed dealers.

In an interview with Kenya Seed Company Chief Executive Officer, Willy Bett says ‘The (counterfeiters) are siphoning millions of shillings from farmers by packaging uncertified maize seeds in the company’s branded packaging materials and distributing them to unscrupulous seed stockists and agents for sale.’

The seeds industry’s annual turnover stands at more than KES5.1 billion out of which 20% is business being promoted by dishonest traders selling fake seeds.

As a country we cannot fight hunger if we cannot protect farmers against fake seeds. We should not address this issue casually but confront it pro-actively. The fake seed scandal is like drug-trafficking.” Bett says.

KMT and Agri-Experience Partnership

In 2013, KMT began to work in the crop seed sector and partnered with Agri Experience in implementing a crop seed sector project under the DfID-funded Market Assistance Programme (MAP). The focus of the project was on developing the crop seed sector in Kenya, working with both public and private sector stakeholders to improve the enabling environment and create lasting positive systemic changes in the market. Key categories of market actors targeted included seed companies, regulators, policymakers, advocacy groups, crop variety researchers and agro-dealers.



The Intervention

The project team initially convened three dinner meetings bringing together senior government representatives from the Ministry, KEPHIS, KALRO and the Office of the President/Vice President to discuss the current status of the crop seed sector in Kenya, best practices in other countries, and the opportunity cost for Kenya of not addressing the challenges in the crop seed sector. Through careful engagement with the Ministry, the project team and partners engaged in multiple constructive meetings with senior Ministry officials, including at times the PS and the CS, to directly present evidence of the current status of the sector and to learn about the Ministry's priorities and guidance.

The project started earnestly facilitating discussions related to the mandatory labelling of seed packets in 2015 and involved seed companies through STAK, the Ministry of Agriculture, Livestock and Fisheries (MoALF) and KEPHIS. KEPHIS

wanted a better traceability mechanism for certified seed in order to better support farmers, while seed companies felt that they needed a way to get farmers to verify that the seed packed was authentic and had been duly certified in order to protect their reputations. However, in the beginning, there was no common agreement about what the solution would entail or how much it should cost. STAK needed to play a key role as an important mediator in the negotiations.

On the contrary, STAK's effectiveness for most of 2015 was sub-optimal due to disarray in the leadership of their Secretariat. The position of Executive Officer was vacant for the first nine months of that year. While KEPHIS was moving ahead with various plans which would impact seed companies, STAK was often not at the table to represent member interests. Several private sector seed companies had actively lobbied, individually, for specific indus-

try-friendly solutions, but in the absence of a representative of the private sector with whom they could engage, KEPHIS announced a tendering process and took steps to move ahead with its own proposed solution, and later announced that it had selected a vendor for the new labels and that the cost to the industry would be 15 Kenya shillings per label. This announcement was met with strong opposition from the seed companies, as the price was higher than the then-current cost for all the packaging material for a 2 kg bag of seed and represented an approximate 4% increase in the price of 2 kg of hybrid maize seed relative to the average price in the market. This increased cost would clearly need to be passed along to farmers, thus increasing their cost of seed.

The proposed solution was a “non-smart” paper label issued by KEPHIS, which seed companies would be required to affix to bags. The industry knew that the cost of this type of label was far less than the KES 15 being charged by KEPHIS. In September 2017, however, the project

team agreed with the STAK Board to facilitate the hiring of an Acting Executive Officer for STAK, with the goal of having a full-time replacement in place by early 2016. The Acting Executive Officer (EO) arrived as seed companies, through STAK, were trying to push back against the newly-mandated labelling solution. The STAK Acting Executive Officer, through the project’s facilitation, took steps to consolidate member feedback and clearly presented it to KEPHIS.

With STAK now having a stronger leadership team in place, formal discussions were undertaken about the appropriateness of the process that was followed and whether or not KEPHIS could mandate this solution, despite a tendering process and the fact that higher value solutions were available in the market at a much lower cost. Eventually, after STAK and KEPHIS discussions were held and raised to high levels of the MOALF, a joint decision was made to re-tender for the labels in a more transparent manner.



Implementation

The supplier of the labels in the re-tendering was chosen through a competitive bidding process, and the Acting CEO of STAK was present to witness the opening of the tender offers on behalf of STAK members. The transparent process saw mPedigree awarded the tender as the market actor. The winning technology included enhanced security features that ensured a farmer could confirm certification at the point of purchase and receive additional information.

In December 2016, the long-awaited revised seed regulations were gazetted. They included the requirement that labels should be affixed on every seed packet under 10 kilograms as a step towards protecting farmers from poor quality and fake seed. KEPHIS and the seed companies now had to implement the plan. The project team continued to facilitate negotiations. Eventually, the price per label was revised downward from KES 15 to KES 2; a more affordable price for seed companies and thus for farmers. Costs had dropped significantly, and the functionality of the labels was vastly greater than the previously chosen label.

An additional outcome of the negotiation was that KES 0.70 of the KES 2 purchase price would go to KEPHIS to help defray the costs of implementing the system from their end. As with all new technologies, the process of releasing an initial lot of labels had teething problems, such as slow supply from the manufacturers, issues with serial numbers (some numbers were not sequential), problems with the activation of labels by seed companies, among other issues.

mPedigree Scratch-off Seed Label: Overview of Technology

After scratching the label, a farmer sends the 12-digit unique number hidden under the scratch label to a short code number using his/her phone.

Within seconds the farmer receives a message communicating if the seed purchased is genuine or not, in addition to confirmation of the variety in the package, the seed company, and the date of testing.

The text is free to the farmer as the charge for the message is incorporated into the cost of the label.

Also included on the label is a KEPHIS hotline number for addressing farmer concerns.



Smart label and sample confirmation SMS

However, with the close working relationship among the key implementing stakeholders and commitment from each of them to have the labels succeed, most of these challenges were addressed within short periods of time.

Seed companies had the option of using the new labels beginning in September 2016, and In October 2017, the seed labels were officially launched by MoALF in a ceremony jointly planned and executed by KEPHIS, STAK and mPedigree. After the launch, it became illegal for certified seed for seed packets under 10 kg to be sold without the new label.

Results

By mid-2018, the scratch-off seed label system was adopted, and over 115 million labels were purchased by companies, with significant income (over GBP 600,000) accruing to KEPHIS. As a result, seed companies started changing behaviour regarding expired seed and warehouse release practices.

With this technology now fully in use, there has been a marked decline in the incidences of counterfeit seed being sold in the market. A further outcome is that smallholder farmers have become more confident in investing in certified seed and can expect good yields at the end of the season; all factors held constant. KEPHIS, on the other hand, will be able to benefit from increased traceability of seed, including preventing the stocking of expired seed. By the end of 2017, a total of 110 million labels had been supplied since the project's inception in August 2016, though about 45 million remained unscratched, i.e. either not activated by companies or the seed was yet to be purchased. The involvement of STAK in the preliminary stages of sourcing for a service provider and extensive lobbying to re-tender helped the industry save more than one billion Kenya Shillings through the year ending 2017, relative to the initial KEPHIS tender and label price.

Systemic Change

The introduction of seed labels in the Kenyan market has brought tremendous gains for the industry as a whole, with a reduction of fake seeds in the market. According to the regulator, Kenya now has less than 5% prevalence of fake crop seeds in the market.

Both KEPHIS and the seed companies have had to change the way they operate to suit the new labels approach. The mPedigree solution involves an online platform that can be accessed by KEPHIS, and by individual seed companies for their own seed inventory. For the labels to return the correct message, both KEPHIS and an individual seed company must go online to “unlock” the relevant label numbers to indicate that the seed is genuine and that it has, indeed, been certified.

This approach requires greater precision in terms of inventory management by seed companies, in addition to close coordination both within, and with, KEPHIS. In addition, agrodealers dealing in expired or fake seed now run the risk of having farmers find out about their illegal practices, hence driving behavioural change among agrodealers.

Challenges

- When buying multiple packets of seed, farmers tend to scratch only one or two labels after they receive confirmation that the seed related to the first label they checked is certified. This has an impact on the effectiveness of the Scratch off label System.
- The lack of a broad, effective channel for communicating with agro-dealers about the labels negatively impacts the system's effectiveness, especially since issues arising will most probably emerge at agrodealers shops.
- Mandating this kind of label on small crop seed packages, especially those under 1 kg, discourages crop seed companies from packaging in very small sizes due to high cost. This has negative implications for product promotions, and small package sale of seed that can be recycled.
- The system does not have the potential to work as well for root and tuber seed, or for seedlings, as it does for crop seed.



Lessons Learnt and Future Considerations

- It is important to identify upfront who owns the data collected – KEPHIS, seed companies (who pay for and affix the label) or the label provider. Once identified, it is also important to define how this data can be used in the long term in a manner that does not undermine the success of the label program.
- Competition among label providers will help to fight supplier rigidity.
- It is important for the service provider to be contractually obligated to report back on what is happening with the system, for example, how many labels have been activated, how many have been scratched etc.

Recommendations and Opportunities for Scale-Up

1. Sustained creation of awareness is essential in ensuring that farmers continue to actually scratch the label.
2. Public and private sector stakeholders need to be clearer about data analysis and communication.
3. Finally, this is a great opportunity for the member association, STAK to generate income from this initiative, considering the central role of STAK in the whole process and ongoing work to ensure its effectiveness.



Conclusion

The system helped curb the sale of counterfeit seed in the market. It is expected that farmers will increase their yield. With increased farmers confidence on the quality of seed in the market, the seed companies' reputation is as well enhanced. Unscrupulous business people will not get an opportunity to smuggle counterfeit seed to the market. Increase in farm yield will eventually contribute to improved food security to the small holder and the country at large.





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CONTACT US



Rivaan Centre, Wing C,
4th Floor, Muguga Green.



+254 20 2588343
+254 722 201233



info@kenyamarkets.org
www.kenyamarkets.org