

Counterfeiting in African Agriculture Inputs – Challenges & Solutions

Summary of Findings

This report was prepared for the Bill and Melinda Gates Foundation in collaboration with Monitor Deloitte

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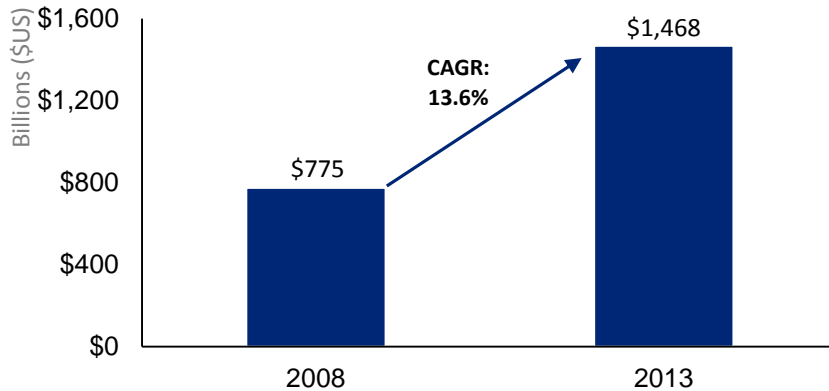
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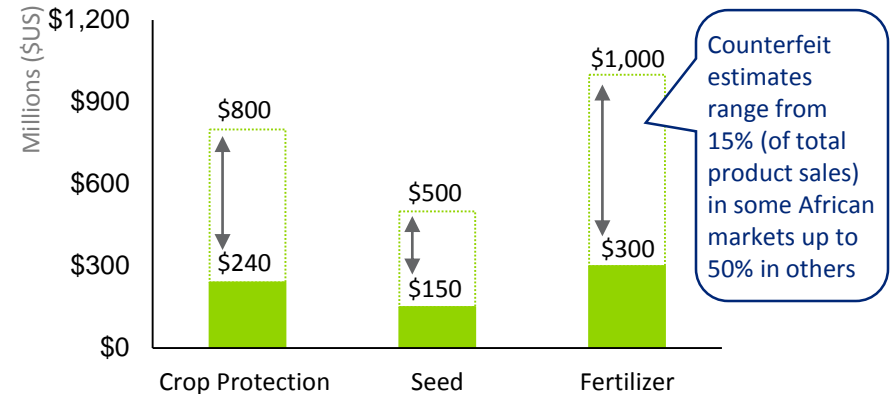
- **Setting the Context: Counterfeiting in Africa**
 - Value Chain Analysis & Types of Counterfeiting
 - Summary of Solutions
 - Path Forward & Recommendation
-

Counterfeiting is a challenge with global reach that spans multiple sectors; agricultural input sectors in Africa are not immune

Global Value Lost Due to Counterfeiting¹



Value Lost Due to Counterfeiting: Agricultural Input Sectors in Africa²



Counterfeit Agricultural Inputs: Prevalence in Africa



“Rwanda: ICT to Fight Fake Agriculture Inputs”
November 2013

30%

UNLICENSED OR SMUGGLED PESTICIDES ON SALE IN GHANA³



“Kenya: Fake Maize Seeds Worry South Sudan Minister”
October 2013

40%

ESTIMATE OF FAKE SEED PACKETS IN KENYA⁴



“Tanzania Amends Law to Curb Fake Fertilizers”
October 2012

30%

COUNTERFEIT HYBRID HIGH-YIELDING VARIETY SEEDS IN UGANDAN MARKET⁵



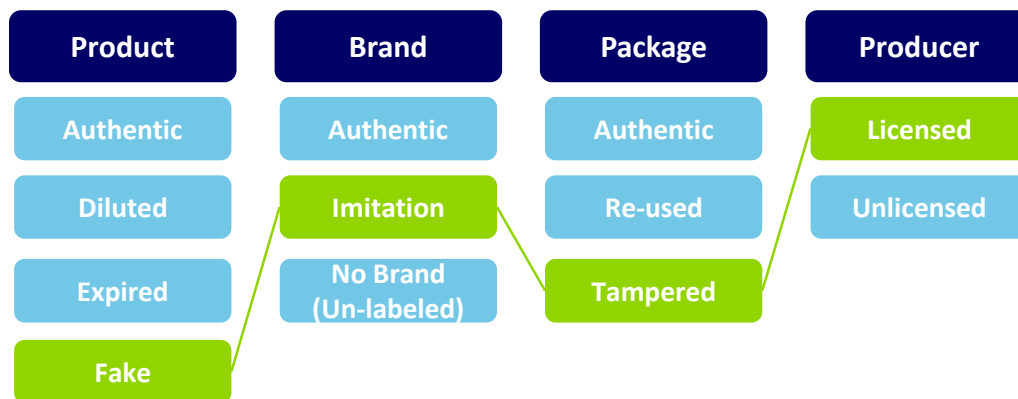
“Cocoa Farmers Advised to Desist from Using Fake Pesticides”
March 2012

Source: : (1) BASCAP (2011); (2) Frost and Sullivan Research (2013); FAOSTAT; Hernandez and Torero (2011); Monitor Deloitte Analysis; (3) CropLife Middle East Africa (2011); (4) Kenya Agricultural Research Institute (2012); (5) Joughin (2014)

Counterfeiting in Africa's agricultural input sectors takes multiple forms – from imitation branding and packaging to partially diluted or entirely fake products

Combinations of How Counterfeiting Occurs

(Example Highlighted in Green)



Examples of Counterfeit Agricultural Inputs

Counterfeit Label and Bags



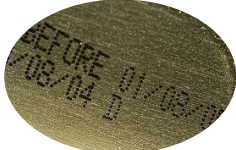
COUNTERFEITERS CHANGE ROUNDUP TO ROUNDALL AND FILL WITH FAKE PRODUCT¹

Re-used Brand Packaging



YARA INT'L FERTILIZER BAGS WERE REPACKAGED AND SOLD WITH COUNTERFEIT PRODUCT²

Expired Products



FARMERS IN NORTHERN GHANA LOST SEVERAL HECTARES OF COTTON AFTER USING EXPIRED PESTICIDES³

Unlicensed Producers



APPROXIMATELY 50% OF SEED COMPANIES IN UGANDA ARE UNLICENSED

Source: (1) Bloch, Kisitu, Gita (2013); (2) Kazoka (2012); (3) Ghana Web (2007);

Smallholder farmers in Africa face significant challenges as a result of using counterfeit agricultural inputs



Reduction in Income

Farmers who use counterfeit agricultural inputs risk significant crop damage, directly impacting their income

“Farmers can lose an entire season to counterfeit products”

-- DEVELOPMENT ORGANIZATION

Health and Safety

Untested and often dangerous crop protection products pose food safety, environmental, and health issues

“There isn't the same sort of consumer protection... we're not talking about an FDA that monitors these issues”

-- DEVELOPMENT ORGANIZATION

Access to Genuine Inputs

Trustworthy agro dealers are forced out of the market when they cannot compete with cheap, counterfeit manufacturers – forcing some farmers to travel further for genuine inputs

“Margins are often higher on the fake or low-quality products”

-- IMPORTER

Trust in Genuine Inputs

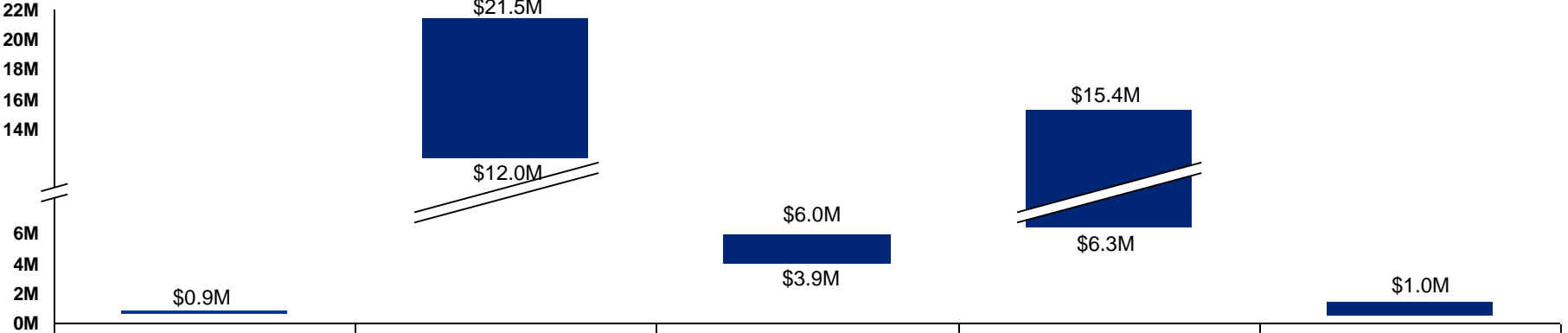
After continuing to buy counterfeits, farmers may lose trust in the efficacy of genuine inputs

“It is important to find champions in farming communities...A lot of them already don't trust us”

-- INDUSTRY ASSOCIATION

Furthermore, manufacturers lose significant value annually to counterfeit agricultural inputs across the markets studied

Value Lost Due to Counterfeiting



Methodology

Maize Seed: The size of seed markets in Uganda and Ghana is based on secondary research. We have applied the estimated level of counterfeiting to hybrids and OPVs separately, based on stakeholder interviews. To calculate the final estimated losses, average market prices of seed types were applied.

Herbicide: The total market size is based on secondary research. The primary driver of counterfeiting is bottle reuse, which was the primary rate applied to calculate total value lost. All other counterfeit activities were estimated based on stakeholder interviews in-country.

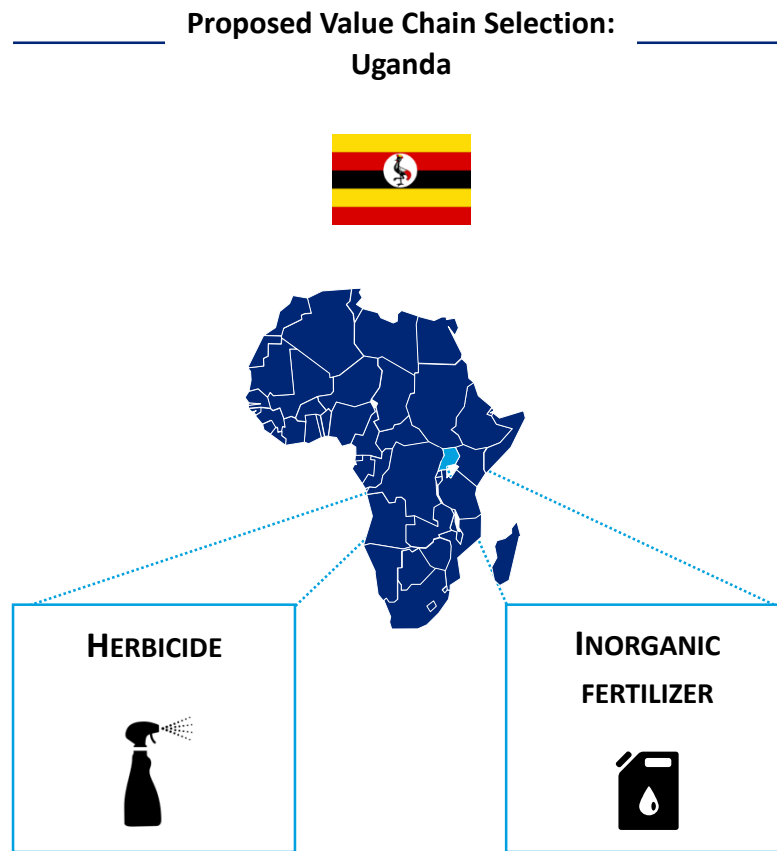
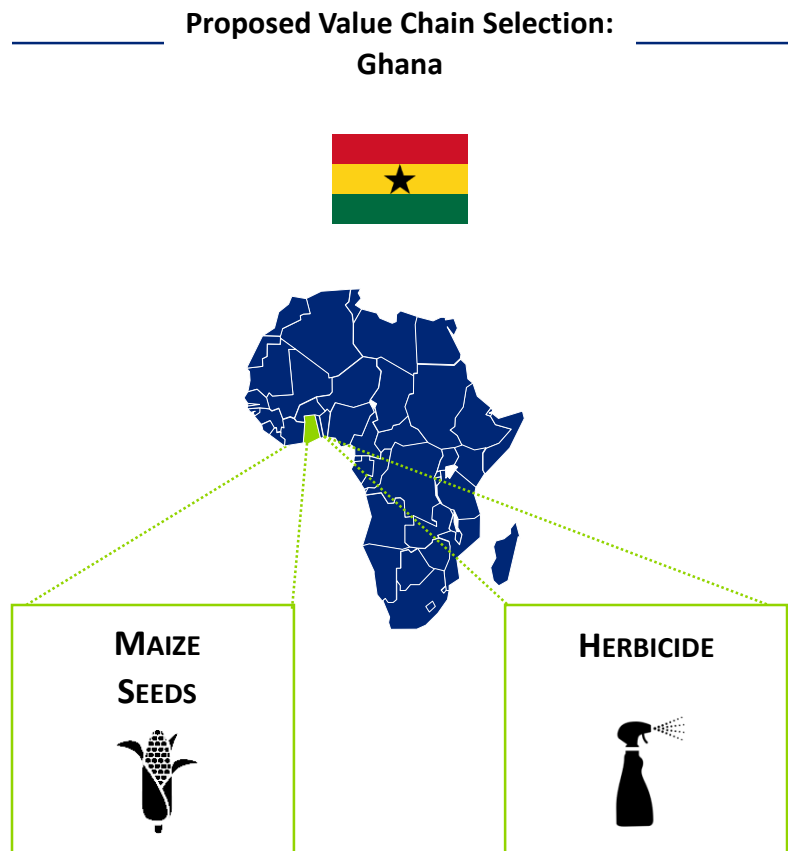
Inorganic Fertilizer: Market data was available through AMITSA; the calculation was only done for Uganda. Counterfeiting primarily affects smallholders, a very small segment of the market. We have estimated and applied the counterfeit rate to the total market.

Sources: Joughin; IFPRI (Uganda Fertilizer and Ghana seed sector studies); stakeholder interviews; Monitor Deloitte analysis

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To better understand the challenge of counterfeiting, we studied maize seeds and herbicide in Ghana, and herbicides, maize seeds and inorganic fertilizer in Uganda



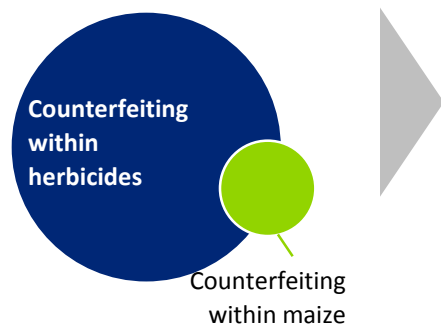
Note: Maize seed was also added to the analysis in order to compare insights across geographies

The selection of these value chains was based on an analysis that assess the following criteria: relevance to smallholder farmers, size of the category, profitability of the category, role of the government, and prevalence of counterfeiting

Based on our field work, we learned that counterfeiting prevalence in Ghana is much higher within the herbicide market than in the maize seed market

Summary of Prevalence of Counterfeiting Across Value Chains Studied

Relative Prevalence of Counterfeiting
(Illustrative Sizes)



While counterfeiting occurs within both herbicides and maize, prevalence is much higher in herbicides. Ghana's maize seed sector is still quite nascent; the sector is largely commoditized – a single low-priced OPV (Obatanpa) captures the majority of seed market. As a result, counterfeiting is not nearly as pervasive in seeds as it is in herbicides.

Summary of Types of Counterfeiting

Herbicides

- **Mislabeled / Sub-standard product** in which the label does not reflect contents in the bottle (often Chinese imports)
- **Label Reuse / Sub-standard product** in which a premium product's label is placed on a bottle of sub-standard product
- **Bottle Reuse / Adulterated product** in which premium bottles are refilled with diluted or fake product
- **Label Imitation / Sub-standard or Adulterated Product** in which a premium brand is imitated, but the product is sub-standard or adulterated

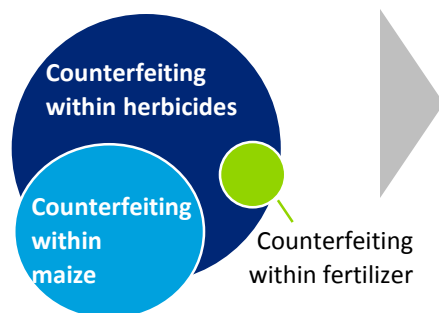
Maize Seeds

- **Mislabeled / Incorrect Seed** in which seed growers, companies, and agro-dealers place grains in the government-issued seed packages, and label them OPV or hybrid varieties.
- **Label Imitation / Adulterated or Sub-standard Seed** in which private seed companies packages are imitated/replicated and grains are sold as OPV or hybrid varieties (very rare given limited number of companies producing their own packages)
- **Mislabeled / Diluted Seed** in which seed growers “top-up” orders with grains in order to meet contracted amount

Similarly, among the value chains studied in Uganda we learned that counterfeiting prevalence is highest within the herbicide market, followed by the maize seed market and the fertilizer market

Summary of Prevalence of Counterfeiting Across Value Chains Studied

Relative Prevalence of Counterfeiting
(Illustrative Sizes)



The prevalence of counterfeiting is highest within herbicides. Counterfeiting in maize seeds – especially among hybrid varieties – is also prevalent, but less so than in herbicides. Smallholder farmers rarely use fertilizer and therefore counterfeiting is not as prevalent as in the other two value chains (but remains a recognized issue).

Summary of Types of Counterfeiting

Herbicides

- **Mislabeled / Sub-standard Product** in which the label does not reflect contents in the bottle (often Chinese imports)
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Maize Seeds

- **Mislabeled / Diluted Seed** in which seed growers "top-up" orders with grains in order to meet contracted amount or mobile salesmen sell grains mixed with seeds out of the back of trucks
- **Label Imitation / Adulterated or Sub-standard Seed** in which imitation packages of leading seed companies are produced and filled with grain and/or fake seeds
- **Label Reuse / Adulterated Seed** in which agro dealers acquire and re-use bags of reputable seed companies

Fertilizer

- **Mislabeled / Underweight Product** in which fertilizer is removed from bag and then the bag is resealed
- **Mislabeled / Diluted Product** in which agro-dealers dilute fertilizer with ash or sand during re-packaging
- **Mislabeled / Adulterated Product** in which large packages are broken into smaller packages and fake materials are placed in the small packages

Counterfeiting activities across the value chains studied are primarily the result of four root causes

Summary of Root Causes of Counterfeiting

1

Package Integrity across Distribution Chain

There are many points of intermediation along the value chain within Africa's agricultural input sectors, and often a high degree of fragmentation; it is thus difficult for manufacturers to track the product flow along the value chain, and difficult for end consumers to authenticate the source.

2

Manufacturers Willingness to Intervene

Many European manufacturers of agricultural inputs (namely, CPPs and fertilizers) are not investing in African markets; as a result, they do not conduct demand planning, manage inventory, or ensure channel accountability beyond the point at which product is sold to importers.

3

Smallholder Context/ Behaviour

It is very difficult for smallholder farmers to determine if a product has been adulterated (diluted or fake) or if it is a sub-standard product (expired or poor quality) based on the label alone; labels and bottles are often tampered with and reused, and the product itself may look and smell the same as an authentic product.

4

Distribution Chain Actors' Behaviour

The profit potential of dealing counterfeit products motivates ill-intentions within actors across the value chain; weak enforcement of regulation means that actors who behave illegally are rarely caught and prosecuted. When prosecution occurs, existing fees and punishment do not serve to deter commitment of further crimes.

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There are six solution archetypes that could address the challenge of counterfeiting; the primary focus of this engagement was on scalable technologies funded by manufacturers

Solution Archetypes to Address Counterfeiting

1

End-User Authentication

Description: End consumers verify that an agricultural input was produced by a credible, certified manufacturer; solution leverages either coin-scratch labels or holograms as the medium to conceal PIN code, and mobile phone (text or call) to authenticate source

Point Solution Evaluated: Coin Scratch & Mobile Authentication

2

Quality Assurance / Certified Channels

Description: The quality of the product is assured through independent testing, and actors along the value chain are certified to distribute the product; solution would require an external evaluator to test the product at each point of intermediation in the value chain

Point Solution Evaluated: Mobile Testing Kits

3

Smallholder Education

Description: Smallholder farmers are provided training platforms focused on the importance and value of genuine inputs, methods of detecting counterfeit products, and agricultural input purchasing best practices

Point Solution Evaluated: Information Collection & Dissemination Platform

4

Track-and-Trace Technologies

Description: Manufacturers verify the movement of an input at each point along the value chain; solution leverages either RFID tags (passive or active) or barcode applications (2D or QR codes)

Point Solutions Evaluated: Barcode Applications, Inventory Management Platform, and RFID tags

5

Product, Package, or Channel Investment

Description: Manufacturers invest in direct access to the channel (e.g., build local import facilities and distribution centers); or invest in product innovation that is difficult to counterfeit (e.g., seed dyes) or invest in package innovation (e.g., smaller packs)

Examples listed in appendix

6







Regulatory Investment

Description: Government regulatory agencies are equipped to set high quality standards for the manufacture and distribution of agricultural inputs, conduct random product testing, investigate sources of counterfeiting on an ongoing basis, and enforce regulations effectively

Solutions related to end-user authentication, quality assurance / certified channels, track & trace technologies, and smallholder education were the primary focus of this research

We have assessed six leading solutions that have been effective in other industries to tackle counterfeiting

Solutions to Tackling Counterfeiting¹

	Description	Assessment of Viability
<ul style="list-style-type: none"> Track-and-Trace Technologies BARCODE APPLICATIONS	<ul style="list-style-type: none"> Unique product information is encoded on barcodes, which are affixed to the product and scanned at each step of the value chain Manufacturers are able to track product flow through value chain 	 <ul style="list-style-type: none"> Requires significant process change; each actor needs to use scanners Expensive to implement
<ul style="list-style-type: none"> Quality Assurance MOBILE TESTING KITS	<ul style="list-style-type: none"> Product is tested for quality at each stage of value chain by an external evaluator; agro dealers are independently certified to distribute agricultural inputs 	 <ul style="list-style-type: none"> Requires significant investment in testing infrastructure and resources Addresses all types of counterfeiting
<ul style="list-style-type: none"> End User Authentication COIN SCRATCH & MOBILE AUTHENTICATION	<ul style="list-style-type: none"> End consumers verify the product was produced by a credible, certified manufacturer (via coin-scratch labels & SMS) Enables source authentication; eliminates bottle/label reuse 	 <ul style="list-style-type: none"> Very effective solution when package integrity is maintained Low cost to implement and operate
<ul style="list-style-type: none"> Smallholder Education INFORMATION DISSEMINATION PLATFORM	<ul style="list-style-type: none"> Farmer reports incidence of counterfeiting to hotline; data is aggregated and pushed back out to subscribers periodically Enables farmers to learn from each other – network effects 	 <ul style="list-style-type: none"> Very effective to tackle counterfeiting when scale has been achieved Potential for garbage in, garbage out
<ul style="list-style-type: none"> Track-and-Trace Technologies INVENTORY MANAGEMENT PLATFORM	<ul style="list-style-type: none"> Agro dealers assess product inventory and notify manufacturers of stock levels through mobile application Primarily addresses root cause of counterfeiting: stock-outs 	 <ul style="list-style-type: none"> Requires significant process change Addresses only one root cause of counterfeiting
<ul style="list-style-type: none"> Track-and-Trace Technologies RFID TAGS	<ul style="list-style-type: none"> Radio Frequency Identification (RFID) tag is affixed to product, crate, or pallet; RFID reader uses radio waves to wirelessly scan tag when product comes within close proximity 	 <ul style="list-style-type: none"> Requires significant investment in RFID tags and RFID scanners Technology can be unreliable

Key:
● End User Authentication ● Track-and-Trace Technologies
● Smallholder Education ● Quality Assurance



These solutions vary in terms of advantages, risks, costs, time to implement, and potential viability

	BARCODE APPLICATIONS	MOBILE TESTING KITS	COIN SCRATCH & MOBILE AUTHENTICATION	INFORMATION DISSEMINATION PLATFORM	INVENTORY MANAGEMENT PLATFORM	RFID TAGS
Advantages	<ul style="list-style-type: none"> Provides full supply chain visibility Provides valuable channel data Improves inventory mgmt. processes 	<ul style="list-style-type: none"> Improves quality across value chain Delivers data to inform channel investment-decisions 	<ul style="list-style-type: none"> Provides direct channel to consumer Enables brand protection Provides valuable consumer data 	<ul style="list-style-type: none"> Strengthens markets Delivers data to inform channel investment-decisions Sources data from “crowd” of farmers 	<ul style="list-style-type: none"> Reduces stock-outs Provides valuable channel data Establishes direct link to channel 	<ul style="list-style-type: none"> Offers secure solution Delivers data to inform channel investment-decisions
Risks	<ul style="list-style-type: none"> Process change required (need to scan all inventory) Easy to replicate 	<ul style="list-style-type: none"> Expensive R&D investment Unproven solution High reliance on human capital 	<ul style="list-style-type: none"> Requires farmer literacy Assumption of risk (return policy?) Only effective when package integrity is maintained 	<ul style="list-style-type: none"> Risk of garbage-in, garbage-out Scale required Difficult to keep track of mobile retailers 	<ul style="list-style-type: none"> Process change required Accurate, reliable data required Difficult to keep track of mobile retailers 	<ul style="list-style-type: none"> Expensive to implement High risk; unproven w/ agri. inputs Requires significant process change
Cost	\$310K - \$500K	\$890K - \$1,170K	\$250K - \$430K	\$510K - \$720K	\$280K - \$540K	\$4.5M – \$5.1M
Time-line	6 - 8 months	7 - 9 months	5 - 7 months	8 - 11 months	5 - 7 months	8 - 10 months
Viability of Solution						



There are certain contextual factors required in order for these solutions to be applicable within an agricultural input sector of a given country (1 of 2)

Contextual Factors Required for Solution to be Applicable

	BARCODE APPLICATIONS	MOBILE TESTING KITS	COIN SCRATCH & MOBILE AUTHENTICATION	INFORMATION DISSEMINATION PLATFORM	INVENTORY MANAGEMENT PLATFORM	RFID TAGS
Channel Considerations	<ul style="list-style-type: none"> Package integrity is maintained through distribution process Retailers have capacity to learn & use scanning tools Agro dealer locations are mapped and have unique identifying features (e.g., GPS coordinate of location, phone number, etc.) 	<ul style="list-style-type: none"> Agro dealer locations are mapped and have unique identifying features (e.g., GPS coordinate of location, phone number, etc.) Less fragmentation and intermediation enables manufacturers to keep track of distributor network 	<ul style="list-style-type: none"> Package integrity is maintained through distribution process Agro dealers are familiar w/ scanning technology or SMS 	<ul style="list-style-type: none"> Agro dealer locations are mapped and have unique identifying features (e.g., GPS coordinate of location, phone number, etc.) 	<ul style="list-style-type: none"> Branded product stock-out is a source of counterfeiting Less fragmentation and intermediation enables manufacturers to keep track of distributor network Agro-dealers use smartphones 	<ul style="list-style-type: none"> Package integrity is maintained through distribution process Retailers have capacity to learn and use RFID readers Agro dealer locations are mapped and have unique identifying features (e.g., GPS coordinate of location, phone number, etc.)
Counterfeiting Types Addressed	<ul style="list-style-type: none"> Reused labels and bottles of premium brands Imitation brands/labels of premium brands 	<ul style="list-style-type: none"> Applicable for all types of counterfeiting (product that is sub-standard/adulterated, mislabeled product, and reused labels and bottles) 	<ul style="list-style-type: none"> Reused labels and bottles of premium brands Imitation brands/labels of premium brands 	<ul style="list-style-type: none"> Applicable for all types of counterfeiting (product that is sub-standard/adulterated, mislabeled product, and reused labels and bottles) 	<ul style="list-style-type: none"> Product stock-outs Reused labels and bottles of premium brands Imitation brands/labels of premium brands 	<ul style="list-style-type: none"> Reused labels and bottles of premium brands Imitation brands/labels of premium brands
Manufacturer Considerations	<ul style="list-style-type: none"> Manufacturer is not the source of adulterated or sub-standard products Private brands play a role in purchasing decision of farmers 	N/A	<ul style="list-style-type: none"> Manufacturer is not the source of adulterated or sub-standard products Private brands play a role in purchasing decision of farmers 	N/A	<ul style="list-style-type: none"> Private brands play a role in purchasing decision of farmers 	<ul style="list-style-type: none"> Manufacturer is not the source of adulterated or sub-standard products

There are certain contextual factors required in order for these solutions to be applicable within an agricultural input sector of a given country (2 of 2)






Contextual Factors Required for Solution to be Applicable

	BARCODE APPLICATIONS	MOBILE TESTING KITS	COIN SCRATCH & MOBILE AUTHENTICATION	INFORMATION DISSEMINATION PLATFORM	INVENTORY MANAGEMENT PLATFORM	RFID TAGS
Smallholder Farmer Considerations	<ul style="list-style-type: none"> Farmers are familiar with w/SMS and trust it as a reliable source of information 	<ul style="list-style-type: none"> Farmers trust and understand the value of purchasing inputs through certified channel 	<ul style="list-style-type: none"> Farmers are familiar with w/SMS and trust it as a reliable source of information 	<ul style="list-style-type: none"> Large numbers of farmers buy and use agricultural inputs Farmers know how to identify counterfeits or can be trained to Farmers are familiar with w/SMS and trust it as a reliable source of information 	N/A	N/A
Technology Environment	<ul style="list-style-type: none"> Reliable connectivity to secure database (i.e. power, internet, bandwidth) Reliable data (3G/4G) and mobile network connectivity exist 	<ul style="list-style-type: none"> Reliable connectivity to secure database (i.e. power, internet, bandwidth) 	<ul style="list-style-type: none"> Reliable connectivity to secure database (i.e. power, internet, bandwidth) Reliable mobile network connectivity 	<ul style="list-style-type: none"> Reliable mobile network connectivity 	<ul style="list-style-type: none"> Reliable connectivity to secure database (i.e. power, internet, bandwidth) Reliable data (3G/4G) and mobile network connectivity exist 	<ul style="list-style-type: none"> Reliable connectivity to secure database (i.e. power, internet, bandwidth) Reliable radio frequency waves exists (to read tags)
Human Capital Considerations	N/A	<ul style="list-style-type: none"> Pipeline of talent exists (i.e. agricultural education programs); quality assurance professionals are needed 	N/A	<ul style="list-style-type: none"> Access to human capital who understand the local language and can be trained on use of software application and types of counterfeiting 	N/A	N/A

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We believe that markets will develop over a period of time, at which point the challenge of counterfeiting will be less of a problem

Expected Trend		Impact on Counterfeiting Activities
CHANNEL CONSOLIDATION 	<p>As leading distributors/retailers emerge and grow their market share, channels will increasingly consolidate. Companies will use channel strategies, such as direct to market, channel incentives, and exclusive supply agreements, to gain a competitive advantage</p>	<p>Manufacturers will develop stronger relationships with key distributors/retailers, better manage their inventory, and have more visibility into how products reach the end-user. In this context, delivery channels become less complex, making it easier to track products and address counterfeiting issues.</p>
CONSUMER CONSOLIDATION 	<p>By 2030, 50% of Africans are expected to live in cities. As smallholder farmers move to urban environments, land ownership will become increasingly consolidated through informal or formal mechanisms, unlocking opportunities for farming at scale.</p>	<p>With increased access to larger plots of land, the quantity of agricultural inputs demanded will increase. Mid-to-large scale farmers will demand commercial volumes of agricultural inputs, and thus there will be fewer opportunities for small bottles and labels to be reused and sold.</p>
MANUFACTURER INVESTMENT¹ 	<p>Understated demand, strong growth forecasts, under-utilized arable land, and opportunities for public-private partnerships will incentivize manufacturers to increasingly invest in Africa's agricultural markets.</p>	<p>As manufacturers establish local presence and build stronger relationships with local distributors or vertically integrate, they will be able to better track products through the supply chain and gain greater visibility into counterfeiting activities.</p>
CONSUMER SOPHISTICATION 	<p>Farmers will become more savvy, informed, and educated. Increased government and donor spending and social sector innovations are expected to continue to improve literacy in Africa.²</p>	<p>As farmers become more sophisticated, they will be better equipped to identify counterfeit products and demand authentic ones; as a result, those selling counterfeits will be forced out of the market.</p>
TECHNOLOGY PENETRATION 	<p>Technology will become increasingly adopted across the value chain; manufacturers, distributors/retailers, and farmers will use more sophisticated technologies as affordable solutions enter the market.</p>	<p>Technology will allow users to better manage inventory, predict demand, and gain access to real-time, useful data. Manufacturers can use technology to more effectively share counterfeit information with customers (and vice versa) as well as track genuine products through the supply chain.</p>

Over the next 5-10 years, African agricultural markets will significantly change; these changes will simultaneously address the challenges posed by counterfeiting

Notes: (1) 80% of Investment Promotion Agencies believe African agriculture is the most promising sector for attracting greater FDI; over 325M Africans are employed in agriculture; demand for food in Africa is expected to grow to \$1 Trillion by 2030; Africa's share of the world's total amount of uncultivated, arable land is 60%; (2) 20% of African government expenditures are on education; compared to 10% in OECD countries

Sources: UNCTAD; McKinsey Global Institute; World Bank

In order to catalyze market development, inefficiencies in delivery channels need to be addressed

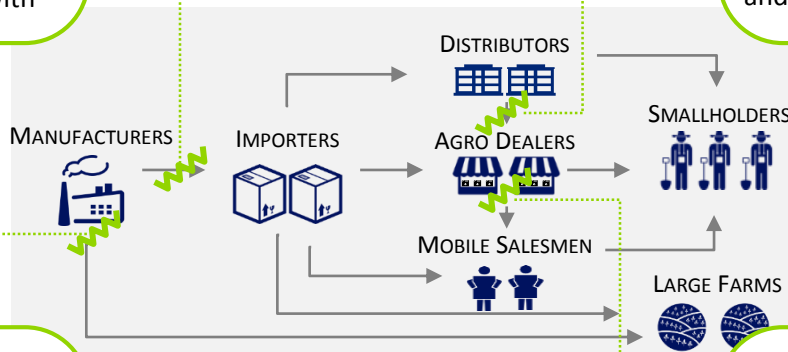
Inefficiencies Across Agricultural Input Delivery Channels

Source of Inefficiency: *Degree of Intermediation:* Product is sold between 4 and 6 times before it reaches the end consumer

Implication: Manufacturers have limited knowledge/visibility of consumer purchase behavior, channel activities, or instances in which product/package is tampered with

Source of Inefficiency: *Fragmentation Across Value Chain:* Distributor and agro-dealer channel is highly fragmented; thousands of small retailers

Implication: Manufacturers have limited knowledge/visibility of product and brand preferences, price points of product sold, and channel incentives



Source of Inefficiency: *Lack of Local Presence by Manufacturers:* CPPs and fertilizers are manufactured abroad, and sold into country through importers

Implication: Manufacturers lack incentives to address challenges faced in-country, and don't make investments in marketing activities

Source of Inefficiency: *Rudimentary Inventory Management:* Tracking of inventory across value chain and at POS is conducted with paper and pencil

Implication: Manufacturers have limited knowledge/visibility of consumer behavior, channel, market, and competitive dynamics

When solving for market development inefficiencies – as opposed to solving solely for the challenge of counterfeiting – the potential solution set becomes much broader

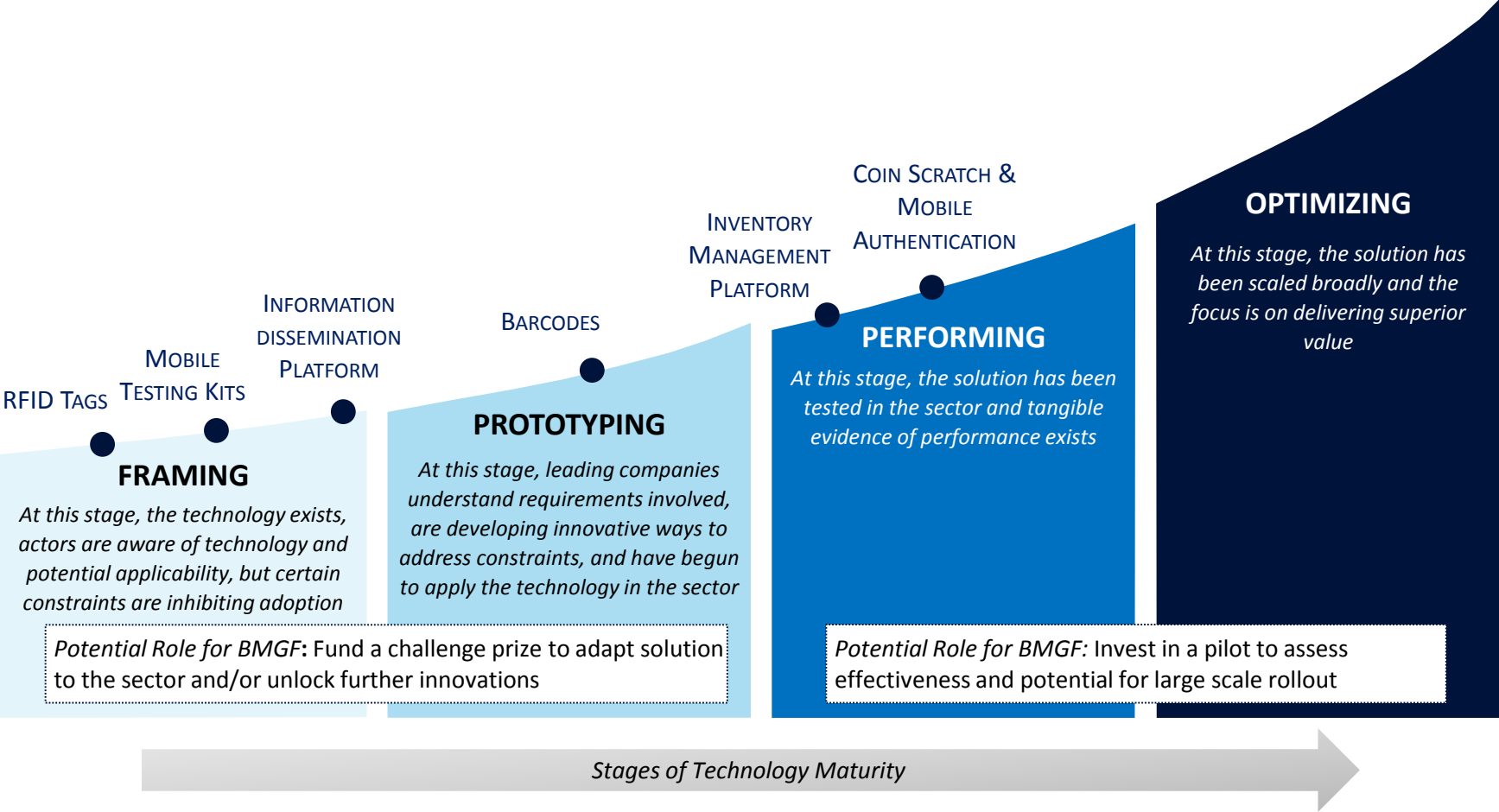
Categories of Solutions that Address Counterfeiting



The primary focus of the current study was on anti-counterfeiting solutions that leverage scalable technological innovations that manufacturers may be willing to invest in if the cost to implement is less than the incremental profit generated

We believe that the role for the Gates Foundation should be driven by the maturity of anti-counterfeiting solutions

Maturity of Anti-Counterfeiting Solutions in African Agricultural Input Sectors



The current maturity level of the anti-counterfeiting solution is a key factor in determining the best next steps for the Gates Foundation