



FEED THE FUTURE

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



Africa's Emerging Herbicide Revolution

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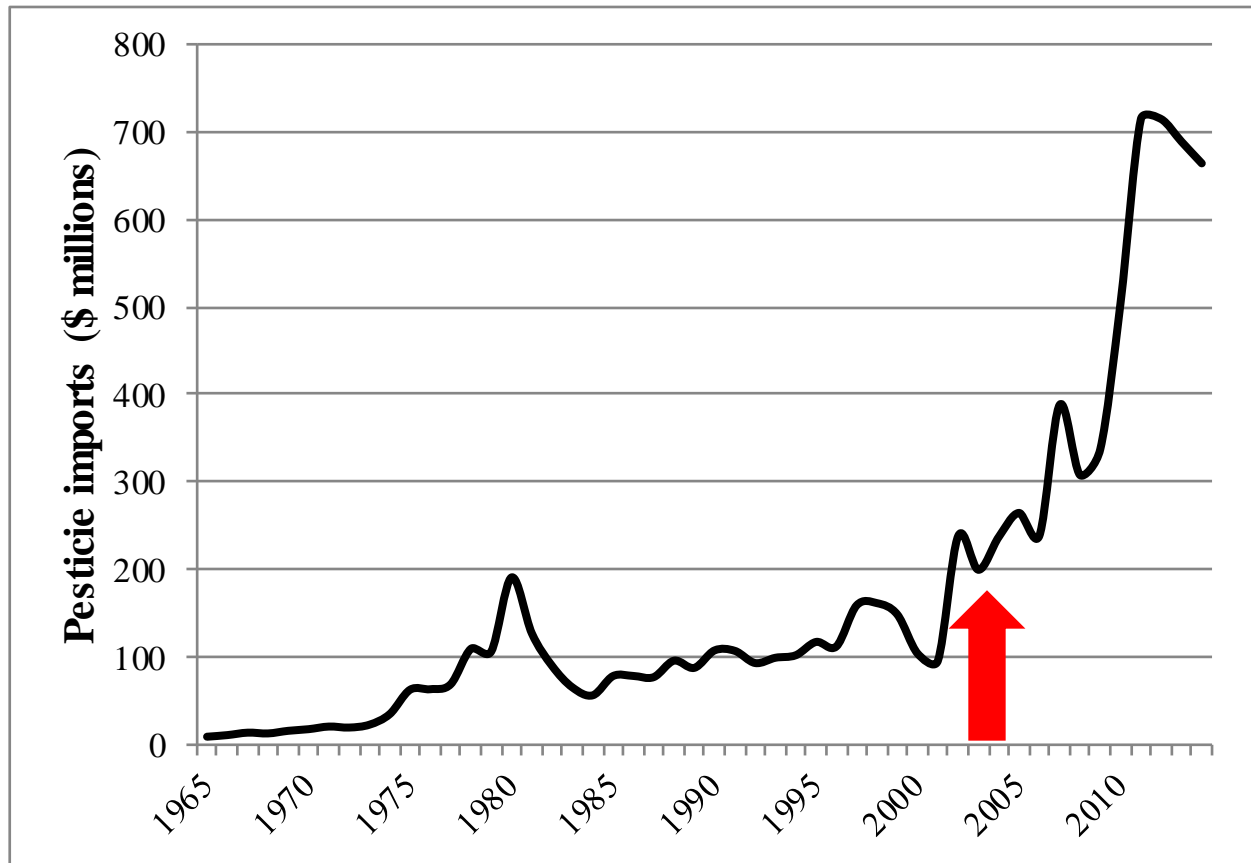


Outline

- 1. Causes of rapid market growth**
- 2. Consequences**
- 3. Regulatory responses**

1. Rapid market growth

Figure 1. Pesticide import trends in West Africa



Source : COMTRADE (2017)

Herbicides dominate

Table 1. Pesticide imports into West Africa, 2015*

Pesticide products	Imports	
	\$ millions	percent
Herbicides	552	62%
Insecticides	229	26%
Others**	104	12%
Total	885	100%

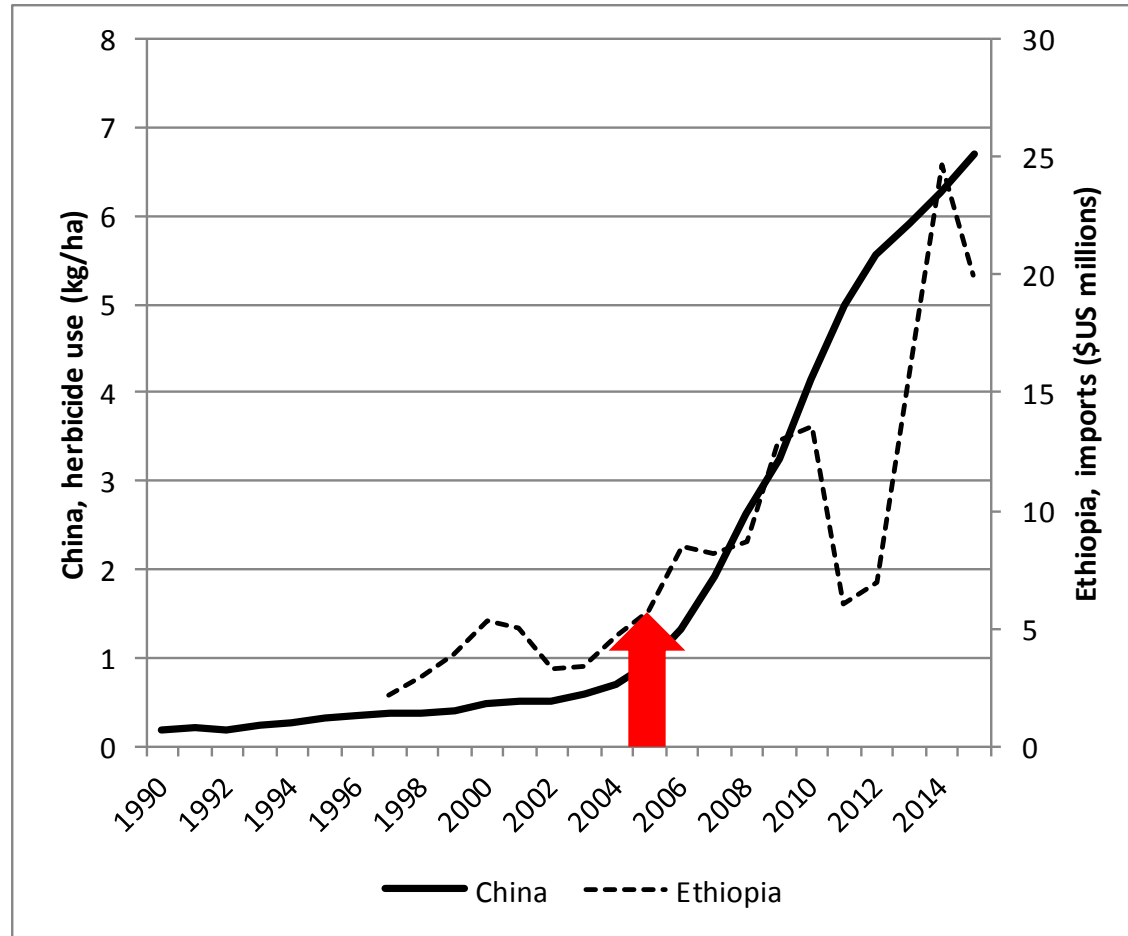
* average, 2014 to 2016

** fungicides, growth regulators, rodenticides, nematicides

Source: COMTRADE (2017), FAOSTAT (2017).

Widespread growth from the mid-2000s

Figure 2. Trends in herbicide use in China and Ethiopia



Source: Huang et al. (2017), Tamru et al. (2017)

Drivers of market growth

- **Global drivers**
 - Expiring international patents
 - Rise of generic pesticides
 - Emerging low-cost Asian suppliers
 - Falling global prices

Drivers of market growth

- **Global drivers**
 - **Expiring international patents**
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Number of global patents issued
for new pesticide active ingredients (AI)

	Patents per year
1990s	13
2000s	10
2010s	7

Source: Dominguez (2015)

Drivers of market growth

- **Global drivers**
 - Expiring international patents
 - **Rise of generic pesticides**
 - Emerging low-cost Asian suppliers
 - Falling global prices

Market share of off-patent pesticides

	Market share
2013	78%
2020	90%

Source: Dominguez (2015)

Drivers of market growth

- **Global drivers**
 - Expiring international patents
 - Rise of generic pesticides
 - **Emerging low-cost Asian suppliers**
 - Falling global prices

Chinese herbicide exports:

1990	0
2015	\$2 billion

Drivers of market growth

- **Global drivers**

- Expiring international patents
- Rise of generic pesticides
- Emerging low-cost Asian suppliers
- **Falling global prices**

Falling glyphosate prices, 1990 to 2015

USA -50%

China -70%

Mali -50% (from 2000)

Drivers of market growth

- **Domestic drivers**
 - Urbanization
 - Rural-to-urban labor migration
 - Intensification pressures
 - Rising farm labor costs

Drivers of market growth

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In 2015, herbicides cost half as much as hired weeding labor in southern Mali.

Outline

1. Causes of rapid market growth
2. Consequences
 - a) **Market structure**
 - b) Farm-level impacts
 - c) Public health implications
3. Regulatory responses

2. Consequences of rapid market growth

- New traders
- Proliferating brands
- Counterfeit and unregistered products

Consequences of rapid market growth

- **New traders**
- Proliferating brands
- Counterfeit and unregistered products

Table 3. Trends in the number of registered pesticide traders and applicators

	2000	2016	annual growth rate
Côte d'Ivoire			
importers	12	67	11%
retailers	113	779	13%
applicators	44	396	15%
Guinea			
importers	2	21	16%

Sources: Traore and Haggblade (2017a, 2017b).

Consequences of rapid market growth

- **New traders**
- Proliferating brands
- Counterfeit and unregistered products



Consequences of rapid market growth

- New traders
- **Proliferating brands**
- Counterfeit and unregistered products

Figure 3. Roundup and imitations



Consequences of rapid market growth

- New traders
- **Proliferating brands**
- Counterfeit and unregistered products

Figure 4. The Red Berets



Consequences of rapid market growth

- New traders
- Proliferating brands
- **Counterfeit and unregistered products**



Consequences of rapid market growth

- New traders
- Proliferating brands
- Counterfeit and unregistered products
- **Monitoring capacity can't keep pace**
- **Quality problems unmonitored**

Figure 5. Glyphosate samples: same active ingredient, differing contents



Consequences of rapid market growth

- New traders
- Proliferating brands
- Counterfeit and unregistered products
- Monitoring capacity can't keep pace
- Quality problems unmonitored
- **Environmental and health impacts poorly monitored**

Coming presentations

- 1. Causes of rapid market growth**
- 2. Consequences**
 - a) Market structure
 - b) Farm-level impacts (Smale)**
 - c) Public health implications (Sheahan)**
- 3. Regulatory responses**
 - a) Private sector responses (Yao)**
 - b) Regulatory challenges in West Africa (Diarra)**
 - c) Regulatory responses in East Africa (Sandahl)**

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