Africa’s Emerging Herbicide Revolution

Steven Haggblade
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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)
Table 1. Pesticide imports into West Africa, 2015*

<table>
<thead>
<tr>
<th>Pesticide products</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ millions</td>
</tr>
<tr>
<td>Herbicides</td>
<td>552</td>
</tr>
<tr>
<td>Insecticides</td>
<td>229</td>
</tr>
<tr>
<td>Others**</td>
<td>104</td>
</tr>
<tr>
<td>Total</td>
<td>885</td>
</tr>
</tbody>
</table>

* average, 2014 to 2016

** fungicides, growth regulators, rodenticides, nematicides

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
  o Expiring international patents
  o Rise of generic pesticides
  o Emerging low-cost Asian suppliers
  o Falling global prices
Drivers of market growth

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

Number of global patents issued for new pesticide active ingredients (AI)

<table>
<thead>
<tr>
<th>Period</th>
<th>Patents per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990s</td>
<td>13</td>
</tr>
<tr>
<td>2000s</td>
<td>10</td>
</tr>
<tr>
<td>2010s</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Dominguez (2015)
Drivers of market growth

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>78%</td>
</tr>
<tr>
<td>2020</td>
<td>90%</td>
</tr>
</tbody>
</table>

Source: Dominguez (2015)
Drivers of market growth

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

Chinese herbicide exports:

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>$2 billion</td>
</tr>
</tbody>
</table>
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
  o Urbanization
  o Rural-to-urban labor migration
  o Intensification pressures
  o Rising farm labor costs
Drivers of market growth

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

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

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2016</th>
<th>annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Côte d'Ivoire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>importers</td>
<td>12</td>
<td>67</td>
<td>11%</td>
</tr>
<tr>
<td>retailers</td>
<td>113</td>
<td>779</td>
<td>13%</td>
</tr>
<tr>
<td>applicators</td>
<td>44</td>
<td>396</td>
<td>15%</td>
</tr>
<tr>
<td>Guinea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>importers</td>
<td>2</td>
<td>21</td>
<td>16%</td>
</tr>
</tbody>
</table>

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
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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http://foodsecuritypolicy.msu.edu/