THE ECONOMICS OF COTTON PRODUCTION IN BENIN

The Economics of Land Degradation Initiative
The German Cooperation

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COTTON PRODUCTION IN BENIN

• Important for the Beninese economy
• Long standing government support for the sector
• Not without impacts and costs...
  – To the treasury
  – For the farmer and on the environment
  – Socio-cultural changes and marginalization of pastoralists
COTTON PRODUCTION IN BENIN

• A controversial crop
  – Yields easily decimated by severe weather and pests
  – Covers 2.5% of the world’s cultivated land, but uses 6% of the world’s pesticides
  – 90% of all imported pesticides in Benin are used on cotton
‘Economics of Land Degradation’ study in Banikoara

- Municipality in Northern Benin
- Known as the capital of White Gold
- Surveyed conventional (#200) and organic (#100) producers in October 2016 on the cotton campaign of 2015/16
Yields, organic and conventional cotton producers

- Organic yield: 700 kg/ha
- Conventional yield: 1000 kg/ha

- Price organic cotton grain = 0.45 EUR/kg
- Price conventional cotton grain = 0.32 EUR/kg
Revenue, organic and conventional cotton producers

![Bar chart comparing organic and conventional cotton revenue in EUR/ha]

- **Organic**: EUR 313/ha
- **Conventional**: EUR 315/ha
**Capital expenditures, organic and conventional cotton producers**

<table>
<thead>
<tr>
<th>Cost (EUR/ha)</th>
<th>Organic</th>
<th>Conventional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seeds, manure, compost, hired labour</td>
<td>Seeds, NPK, Urea, hired labour</td>
</tr>
<tr>
<td></td>
<td>Biopesticides, Neem, mixtures</td>
<td>Pesticides, formal market</td>
</tr>
<tr>
<td></td>
<td>EUR 68/ha</td>
<td>Pesticides, black-market</td>
</tr>
<tr>
<td></td>
<td>EUR 245/ha</td>
<td>Government subsidies</td>
</tr>
</tbody>
</table>
Net-Benefit, organic and conventional cotton producers

- **EUR 245/ha**
- **134 EUR/kg**
- **77 EUR/kg**

When accounting for gov. spending on subsidies
COST OF ILLNESS AND ENVIRONMENTAL DAMAGES
Endosulfan
Deltamethrin
Cypermethrin
Chlopyrifos...
Share of HH, affected by spraying or the manipulation of pesticides 2015/2016

At least once...

- Used medicine: 60%
- Was incapable of working: 45%
- Visited a doctor: 31%
- Was at the hospital: 24%
- Hired labour due to incapacity to work: 13%
- Visited a traditional practitioner: 11%
<table>
<thead>
<tr>
<th>Economic damages costs</th>
<th>Percentage of households affected</th>
<th>Average cost per affected household (EUR)</th>
<th>Average cost per household, whole population (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost of Illness</strong> (Short-term symptoms only)</td>
<td>70%</td>
<td>61</td>
<td>84</td>
</tr>
<tr>
<td><strong>Loss of domestic animals</strong> (Cattle, Sheep, Goats, Pigs, Chicken)</td>
<td>11%</td>
<td>695</td>
<td>77</td>
</tr>
<tr>
<td><strong>Crop loss from spraying by a neighbour</strong> (corn or cotton)</td>
<td>14%</td>
<td>96</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total economic damage cost</strong> (short-term COI, crop and livestock loss)</td>
<td></td>
<td></td>
<td>174</td>
</tr>
</tbody>
</table>
Private and societal costs and net-benefits average sized farm of 5 ha

Costs

- Seeds, urea, fertilizers, hired labour costs
- Informal and formal market pesticides
- Environmental & COI damage costs
- Subsidies

Net-benefit uncorrected
Net-benefit with damage costs (-23%)
Net-benefit with damage costs and without subsidies (-66%)
Empirical relationship between yields and inputs
Why are farmers choosing organic?
Why are farmers choosing organic?

- Better for health: 80%
- Not complicated/ease of cultivation: 70%
- Premium on the sale of organic cotton: 34%
- Cost of conventional cotton inputs too high: 29%
- Other (better profitability, no debt, autonomy ...): 21%
- Better for the environment: 20%
- Better access and availability of inputs: 12%
- Availability of technical assistance: 6%
- Land too degraded to produce anything else: 1%
Constraints to organic farming

- Yields lower than for conventional cotton: 2%
- Lack of technical assistance: 5%
- Presence of pests: 9%
- Need more labour than conventional cotton: 13%
- Other (difficult to find manure, no wagons available): 20%
- Lack of credit: 21%
- No fertilizers and biopesticides for sale: 21%
- Lack of labour: 37%
- Delayed payment for harvest: 41%
- There are no constraints: 20%

Labour, Finance, Inputs
Concluding comments

• **Organic farming**
  – Climate resilience and land degradation neutrality
  – Conflict management (agro-pastoralism)

• **Organic, not an attractive technology to conventional farmers**
  – Credit only available for conventional cotton production
  – Difficult to scale-up organic cotton production
  – A need for a level playing field

• **Steps in the right direct**: Phasing out of distortionary subsidies, IPM campaigns and the development of agricultural insurance products.
Thank you for your attention!

Questions or remarks?
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