The Faustian Bargain of Tropical Grain Production

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Key Point:
There is a Faustian Bargain at play...

• We are looking for new tropical technologies that make farmers more productive, increase their returns to labor
  • Raise rural wages
  • Stem the incentives to emigrate
  • Provide relief to women farmers
  • Support rural economic development
  • Improve national food security
  • Reduce the dependence on imports of staple foods

• Successful and sustainable soybean as a technology achieves this but... in the tropics is an intensive user of inputs.

• Discussion: do we make the deal? If so, how can we reduce the environmental externalities?
The Evolution of the Sources of Global Agricultural Growth (Fuglie and Rada, 2013)
Comparing the Sources for Agricultural Growth: World and Mato Grosso (Goldsmith and Montesdeoca, 2017)

Comparing Sources of Agricultural Growth
Global vs. Tropical Soybean-Maize Production

- TFP: 72%
- Intensification: 64%
- Extensification: 27%
- Irrigation: 0%

“…Soybean vigorously supported…” in the Northern region of Ghana (Dogbe, et al, 2013)

1. Youth in Agriculture Program
2. Northern Rural Growth Program
3. Savannah Accelerated Development Authority projects
4. Alliance for a Green Revolution in Africa (AGRA)
5. Danish International Development Authority projects
6. United States Agency for International Development projects

“Soybean production was found to be unprofitable….”
DATA LOCATIONS
TROPICAL SOYBEAN PRODUCTION

Sorriso, MT  
12.5 S. Lat.  
1888 mm rain

Tamale, Ghana  
9.4 N.  
1165 mm rain

Web: http://soybeaninnovationlab.illinois.edu/
Twitter: Feed the Future Soy Lab @tropicalsoylab
Tropical Soybean Information Portal: http://tropicalsoybean.com/
Four Comparative Soybean Production Functions

Tropical

Capital Intensive

Ghana Low, Ghana Advanced, Brazil, U.S.
The Faustian Bargain

• Grain production in the tropics highly productive
• But...
• Low input models are not sustainable
• So to get the transformative power of productive grain (soybean) technologies..
  • Inputs are required
• But..
  • What about the environment?
    • What about smart technologies and policies to reduce environmental impacts?
    • There are a number of ideas to address environmental externalities