



# Fitting technology options to farmer context in Mali

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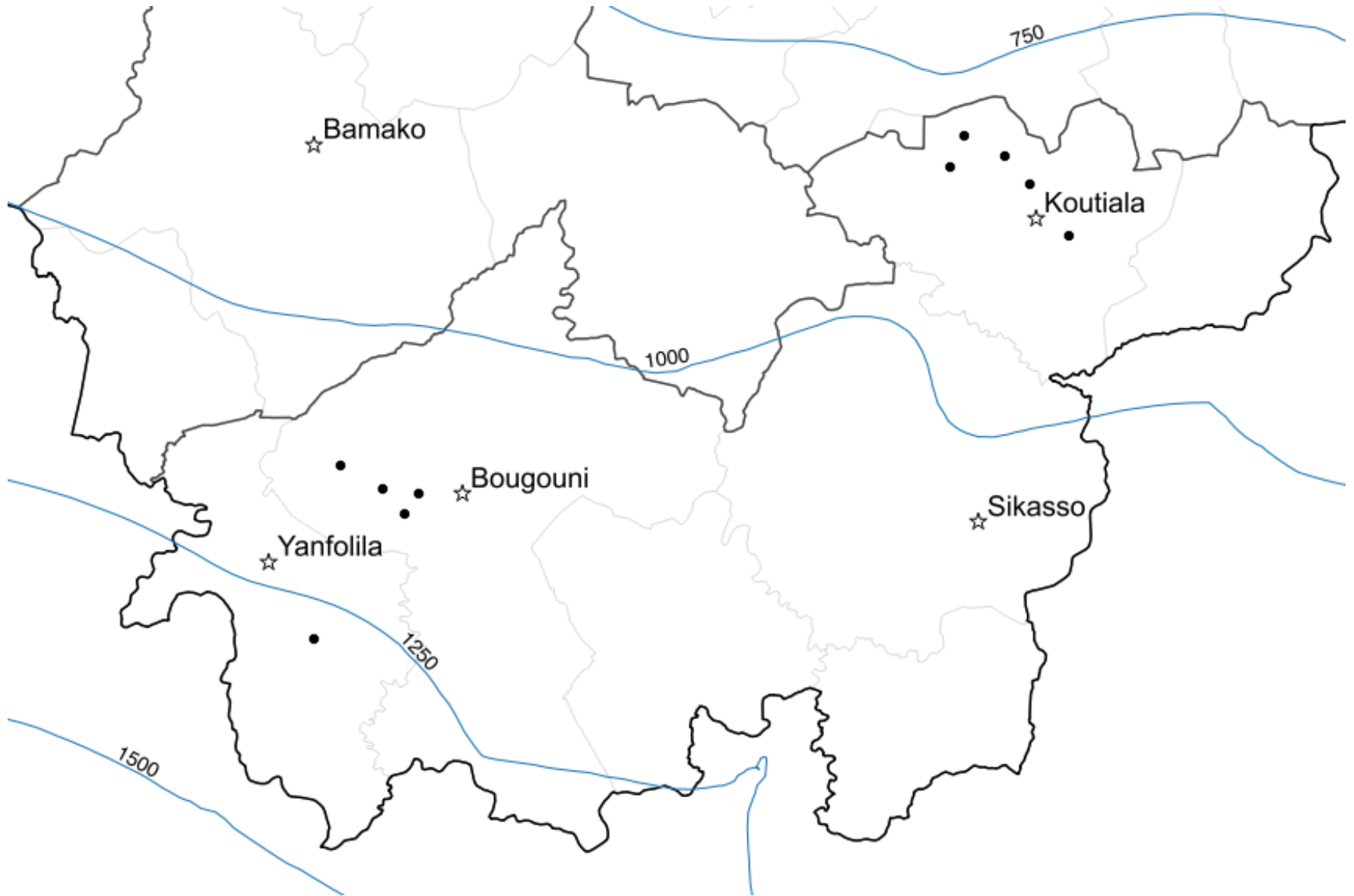
Africa RISING West Africa Review and Planning Meeting,  
Accra, 30 March–1 April 2016



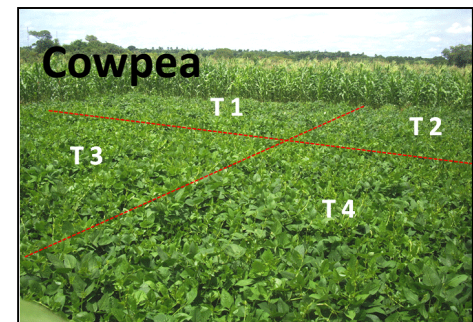
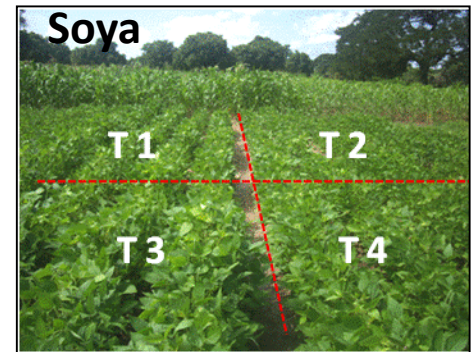
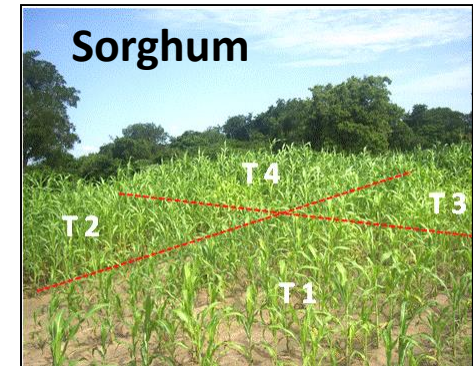
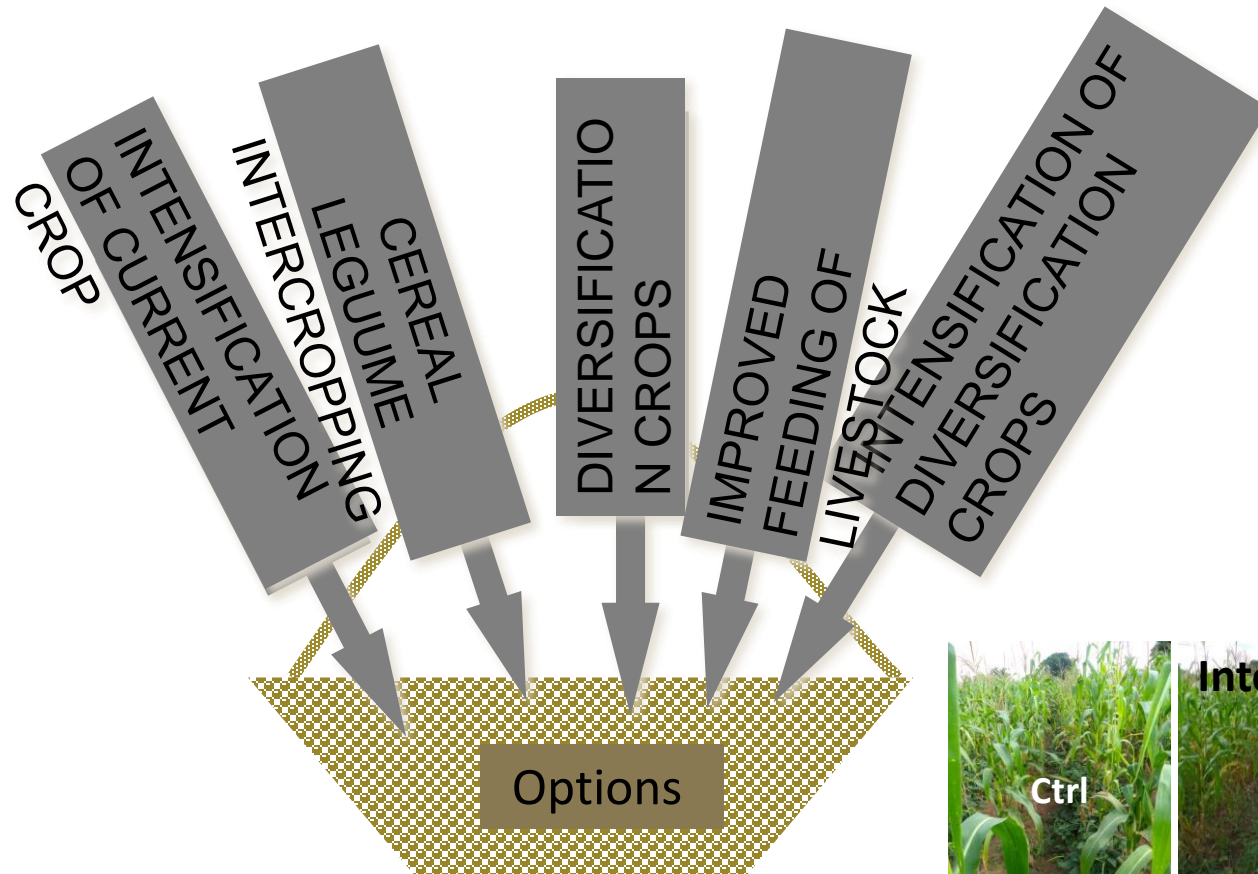
SEE  
FEED  
CHANGE **FUTURE**



# AfricaRISING sites in Mali



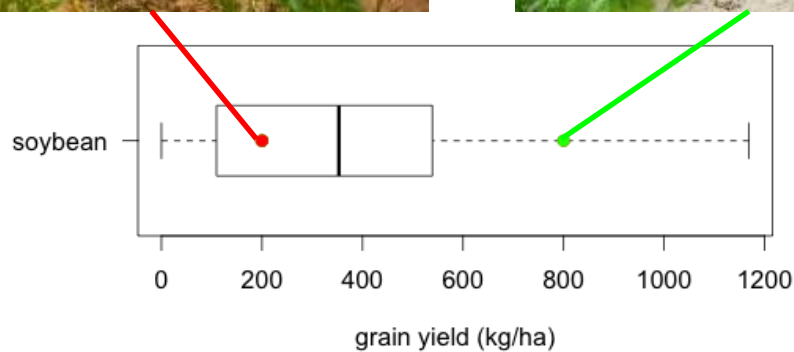
# On-farm trials of options



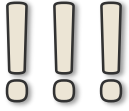


# Analysis of on-farm trials

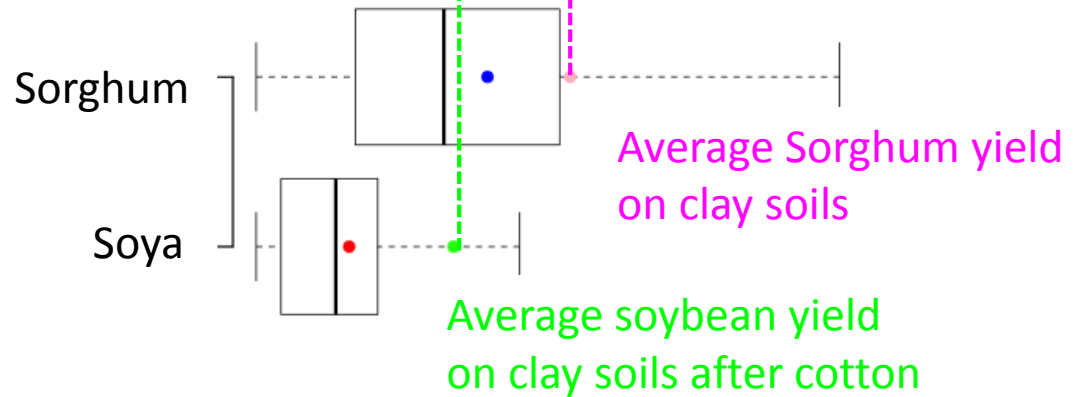
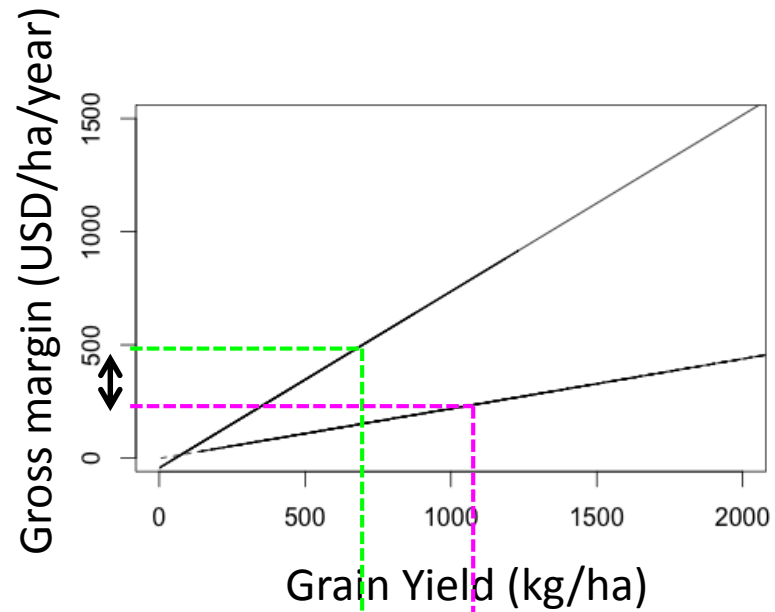
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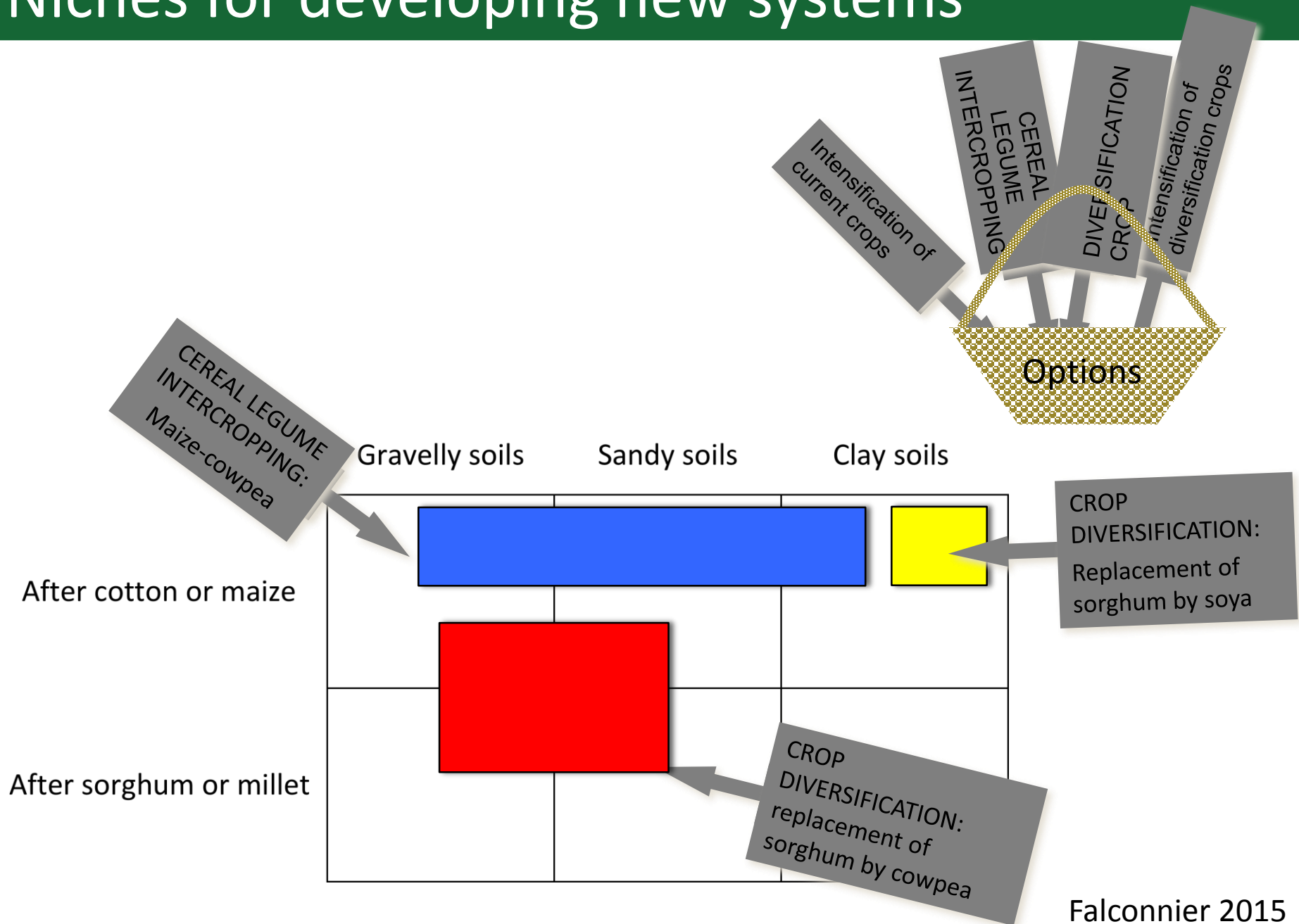
# Analysis of on-farm trials

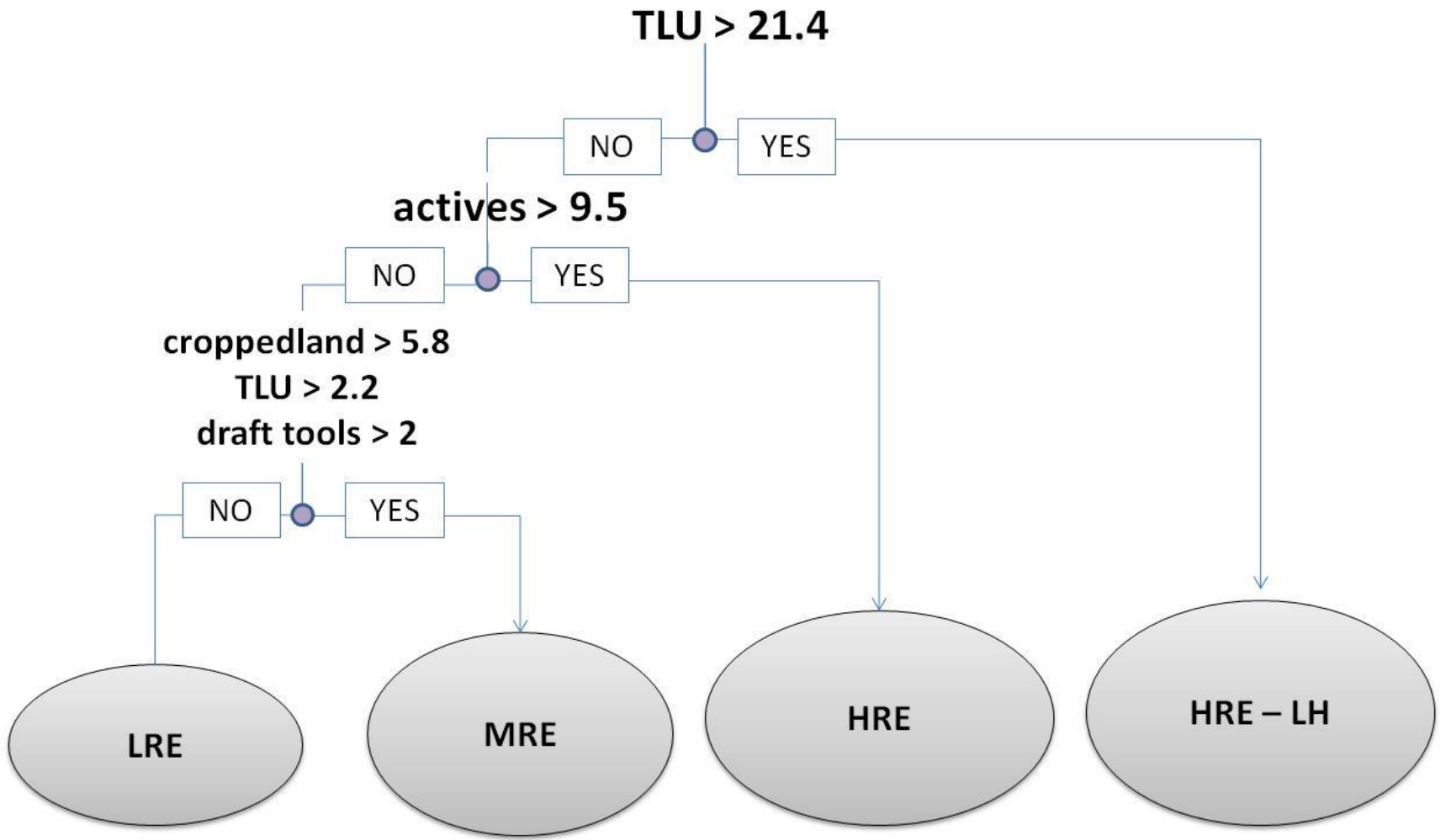


$\Delta GM = 334$   
USD/year/ha

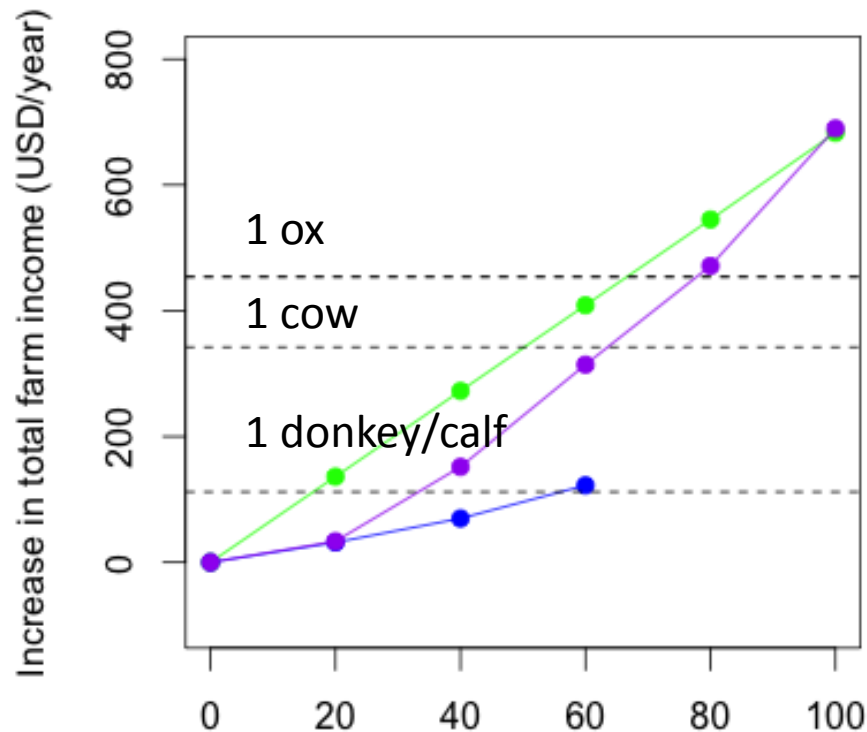
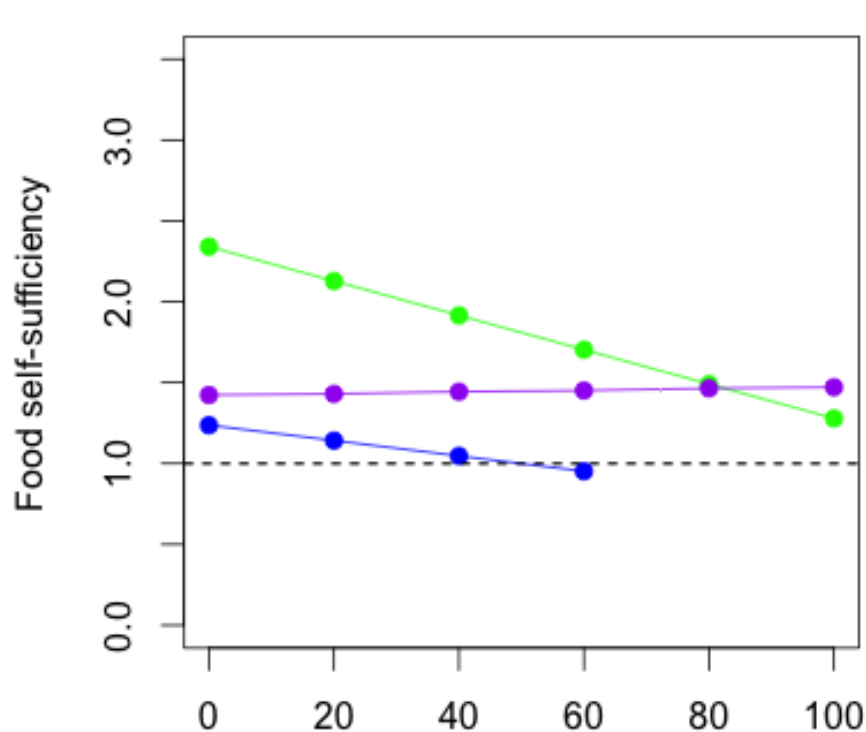


# Niches for developing new systems





# Farm-scale explorations: Trade-off analysis



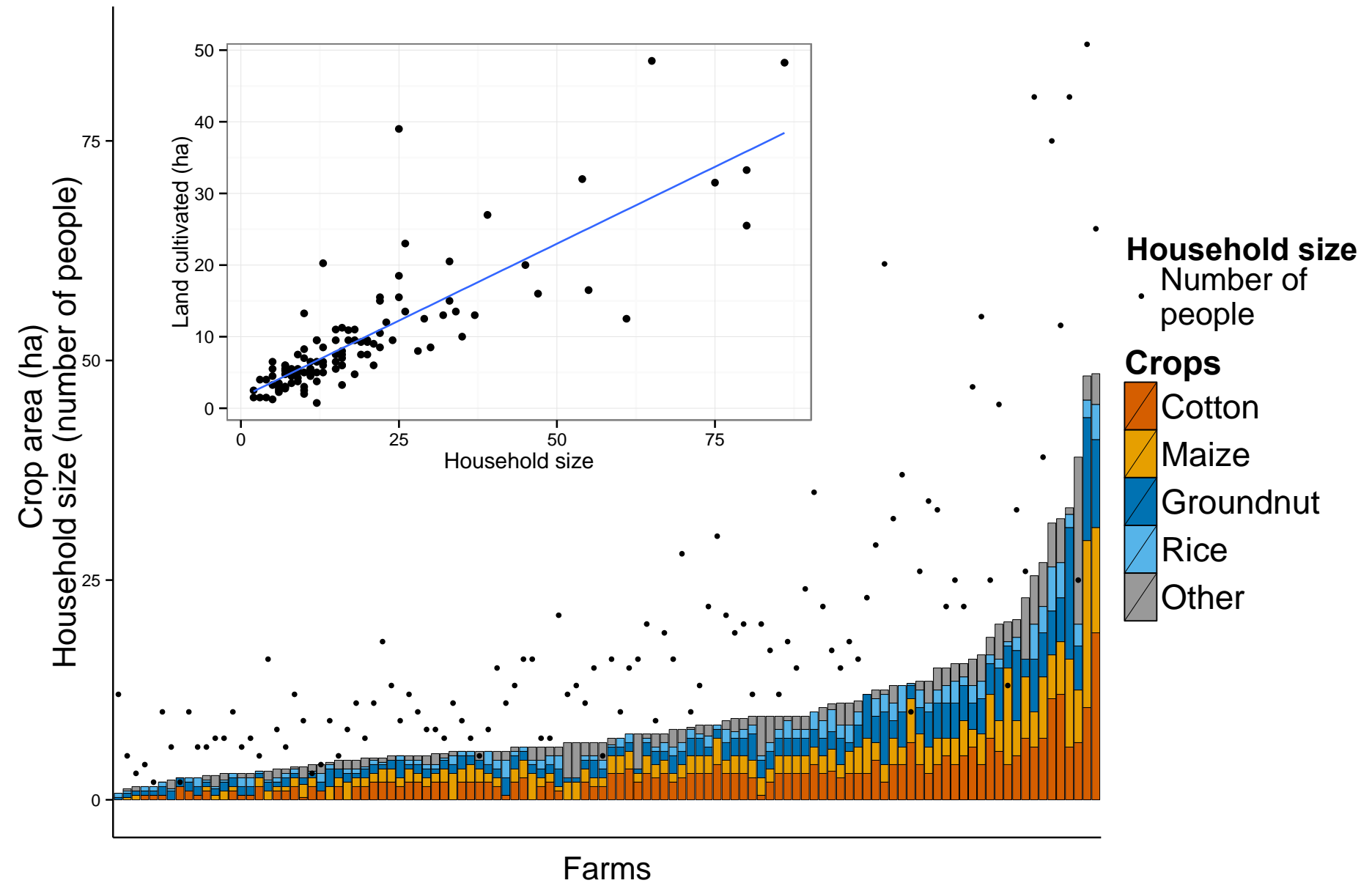
HRE and HRE-LH farms – replacement of maize by maize-cowpea intercrop

MRE farms – replacement of sorghum by soya

LRE farms – replacement of sorghum by cowpea



# Farm distributions



- Many scenarios, using limited data, to quickly explore options
- Input data:
  - Household survey at district level for yields, input costs (AfricaRISING baselines), market survey for crop prices
  - Rapid characterization of population of 109 farm households in 3 villages (crop areas, livestock and equipment), plus detailed characterization of 19 farms based on types
  - Calculated income from crops and food self-sufficiency for each farm in several scenarios

- Yields

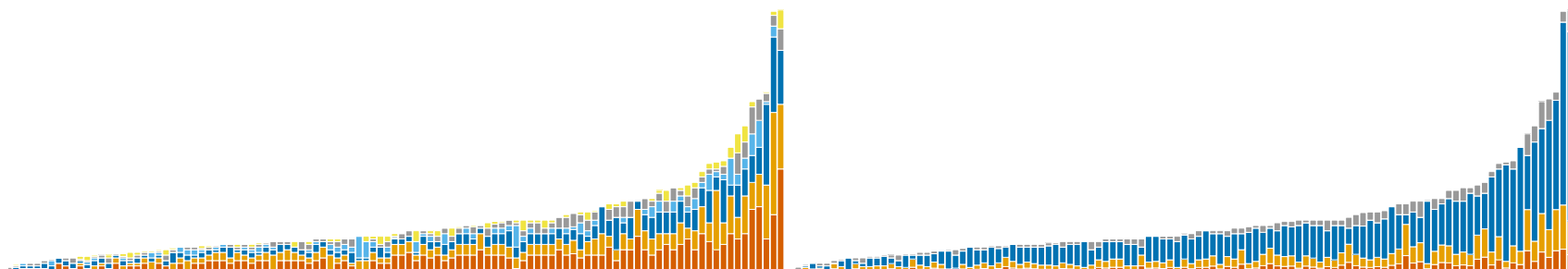
- 50<sup>th</sup> percentile (median) yields [MARBES]
- 90<sup>th</sup> percentile (best farmer practice) yields [MARBES]
- Experimental potential yields [ICRISAT/IER]

- Prices

- Averaged market prices from monthly market survey in 2014-2015

- Calculated income and food self-sufficiency

- Current crop allocation
- Optimized crop allocation
  - Maximize gross margins
  - Meet household calorie requirements with staple grains
  - Maize area < twice cotton area (fertilizer availability constraint)
- Crop area expansion

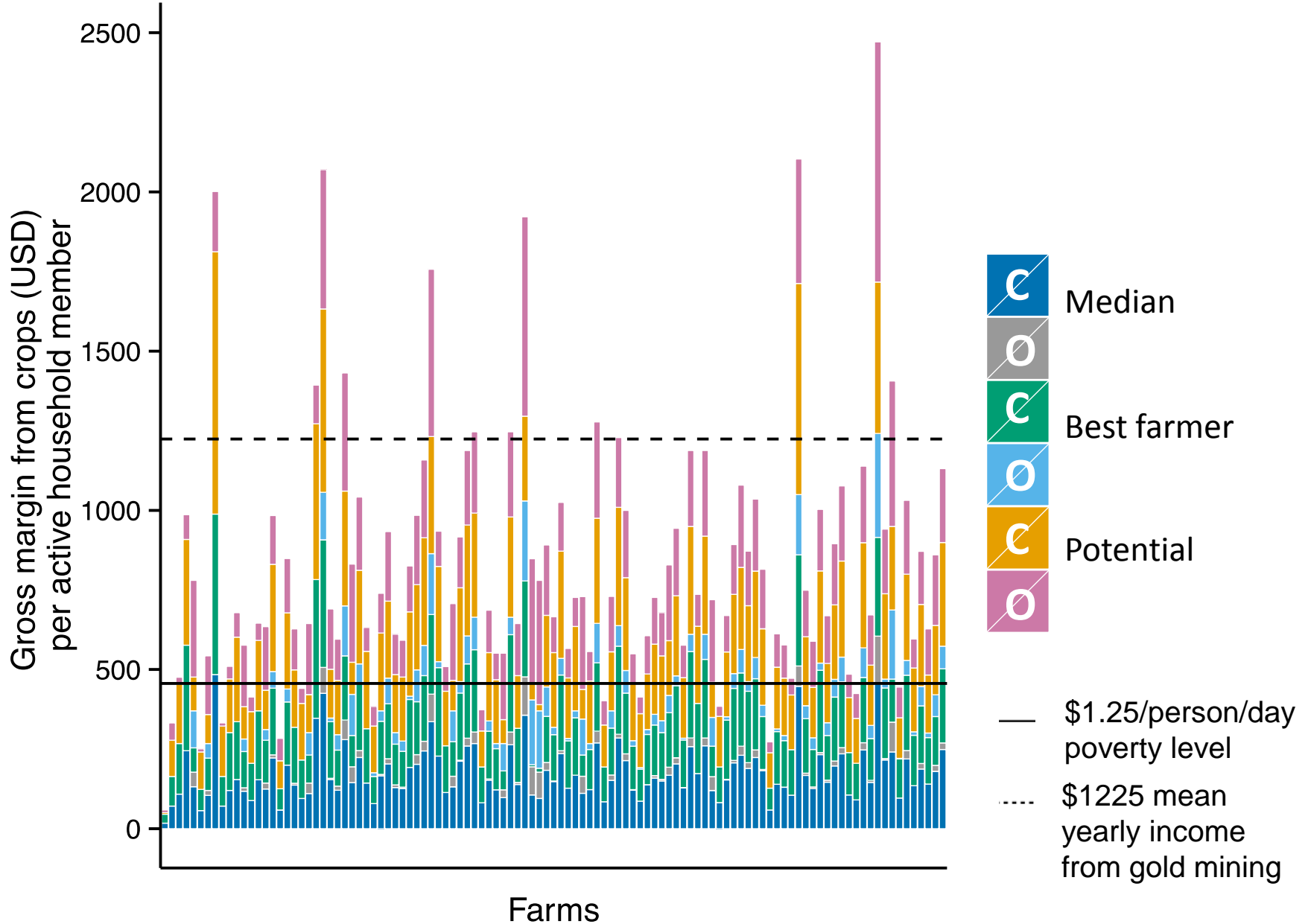


Yield Scenario	≥80% food self-sufficient	≥100% food self-sufficient
Median	91%	79%
Best farmer	99%	99%
Potential	99%	99%

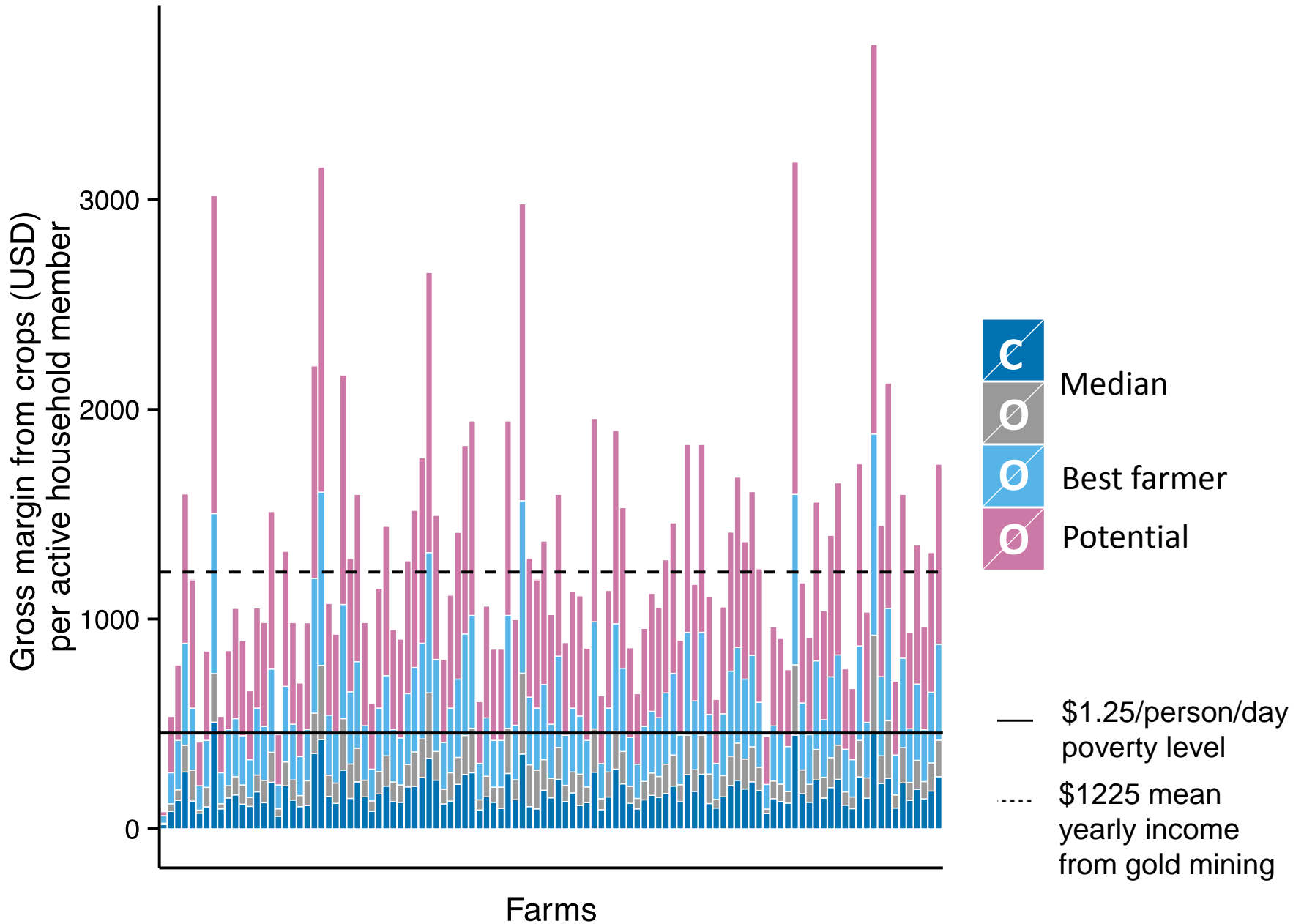
- Median yields: most farms self-sufficient
- All other scenarios: all but one farm is self-sufficient



# Results: Gross Margins

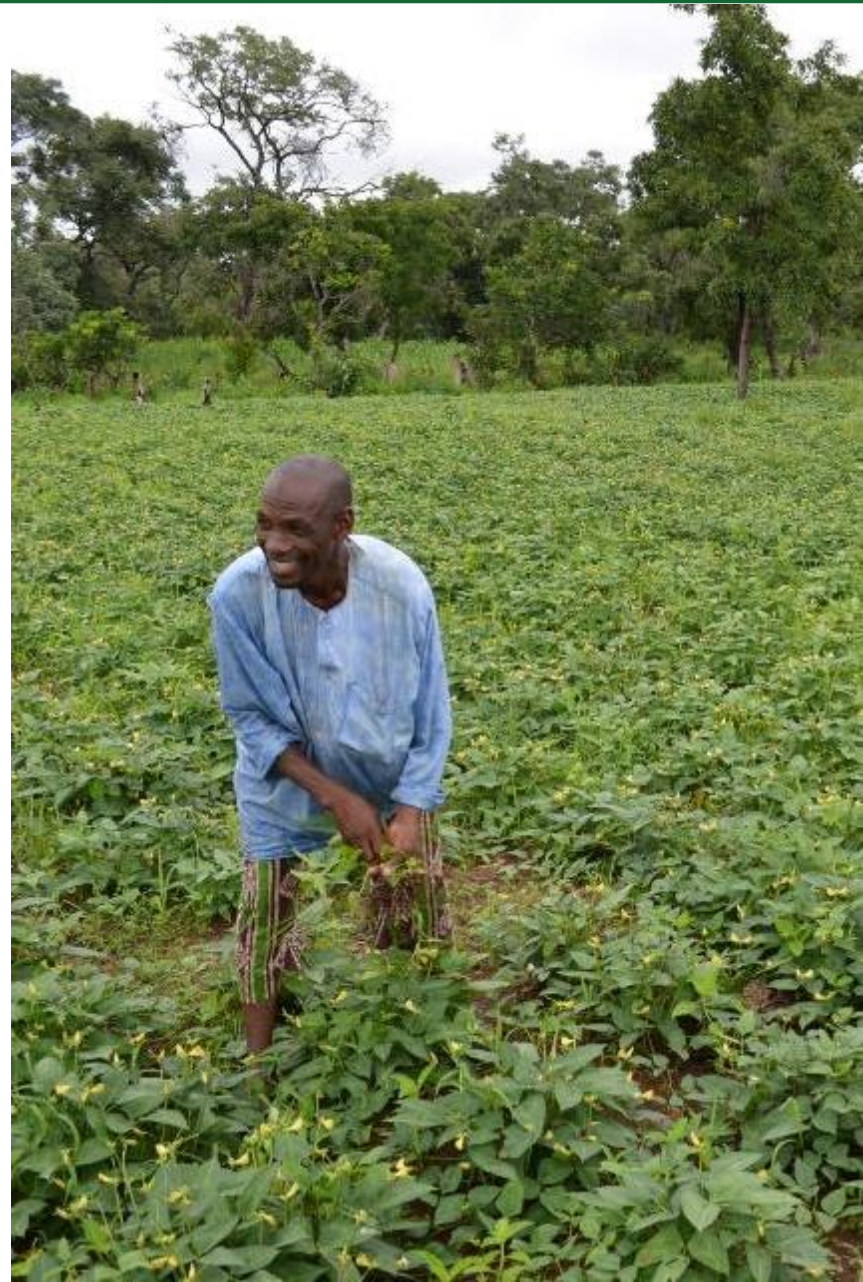


# Results: Gross Margins



# What can we learn from simple scenarios?

- “Rapid prototyping” of farm designs to explore potential
- Estimating cost-benefit of a new technology should be a first step not a last step
- Staple crop improvement research should target food-insecure households
- Livestock and off-farm income sources are important for improving livelihoods



# Typologies for Targeting and Scaling

- Simple indicators allow researchers to place farmers within types
- Important to target a diverse group of farmers for testing technologies
- Farmer evaluations can aid in analysis of variability and in targeting technologies to types
- Ex-post typologies based on initial adoption can be useful for scaling







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*Africa Research in Sustainable Intensification for the Next Generation*

[africa-rising.net](http://africa-rising.net)

