Mbili-Mbili system: Lessons from Babati, Tanzania

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Alliance of Bioversity International and CIAT

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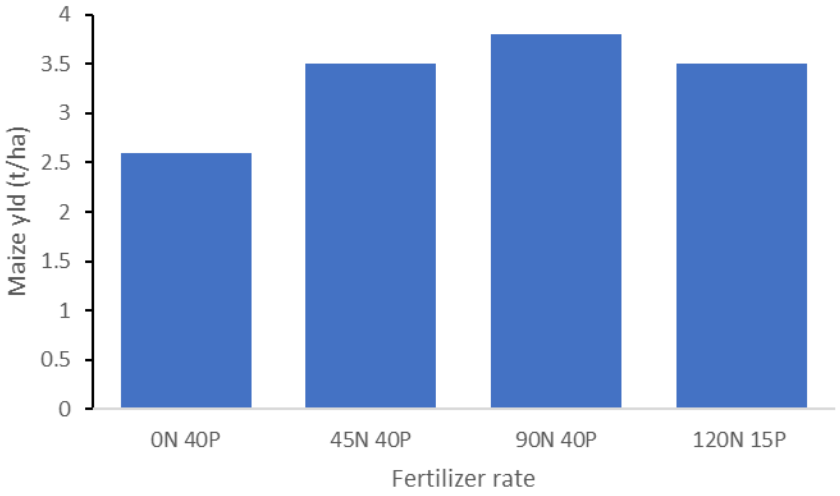
Africa RISING recommendations…



- Under farmer practice 1.9 t/ha of maize is produced
- Applying fertilizers more than doubled maize yields
- 45 kg of N and 20 kg of P was established as the Africa RISING fertilizer recommendation for Babati

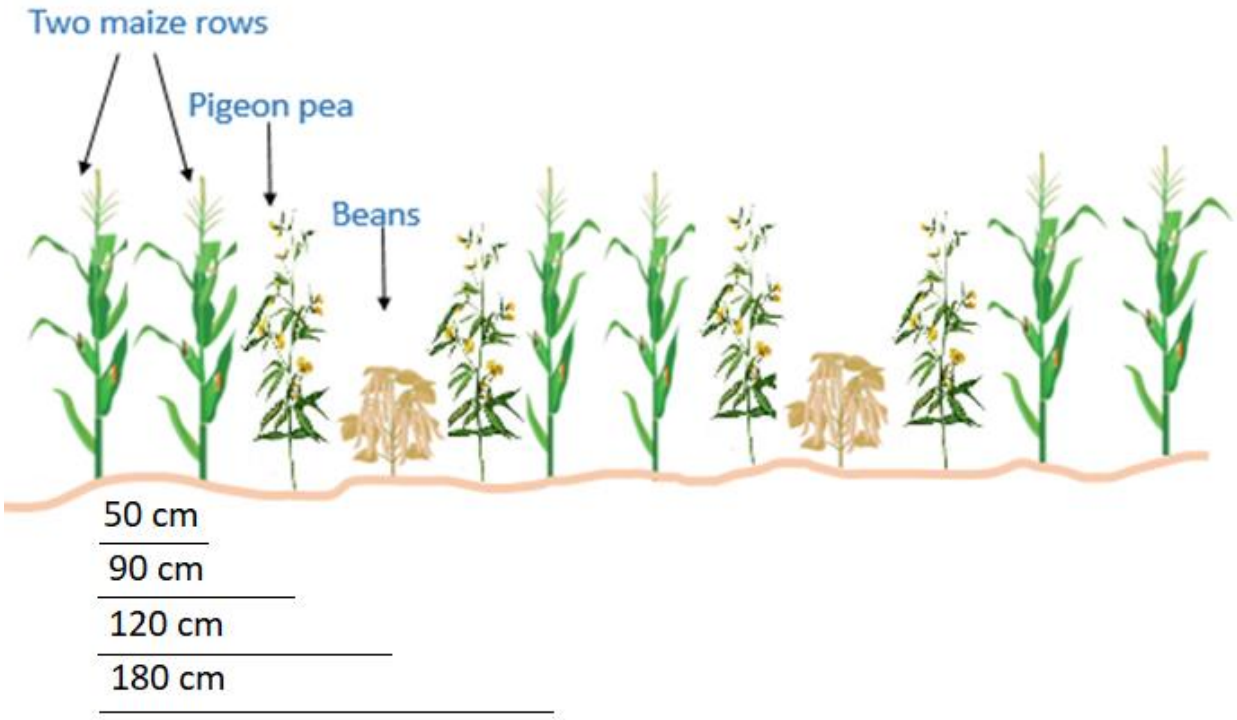
Legume production

- Legume yield under intercropping are low
  - Beans yield (< 250 kg)
  - Pigeonpea yield (< 400 kg)
- Explored opportunities to improve legume yield include:
  - MBILI tested in Kenya
  - Doubled-up legume in Malawi

- MBILI + Double-up legume = Mbili-Mbili

Mbili-Mbili Objective

- Increasing legume productivity without affecting maize yields
- Exploits growth patterns of the intercropping components



- Maize stripped to increase light penetration to intercropped legumes
- Stripping produced 0.7 t/ha biomass

- Similar maize yield as improved maize-legume systems

BEANS (0.3 t/ha)

MAIZE, and later

PIGEON PEA (0.6 t/ha)

through its staggered harvests within the

10-month-long

growing season

Legume yield

- Mbili-Mbili produced between 15-55% of the beans and 36-95% of the pigeonpea under DUL
- Stripping increased pigeonpea yield by 11%

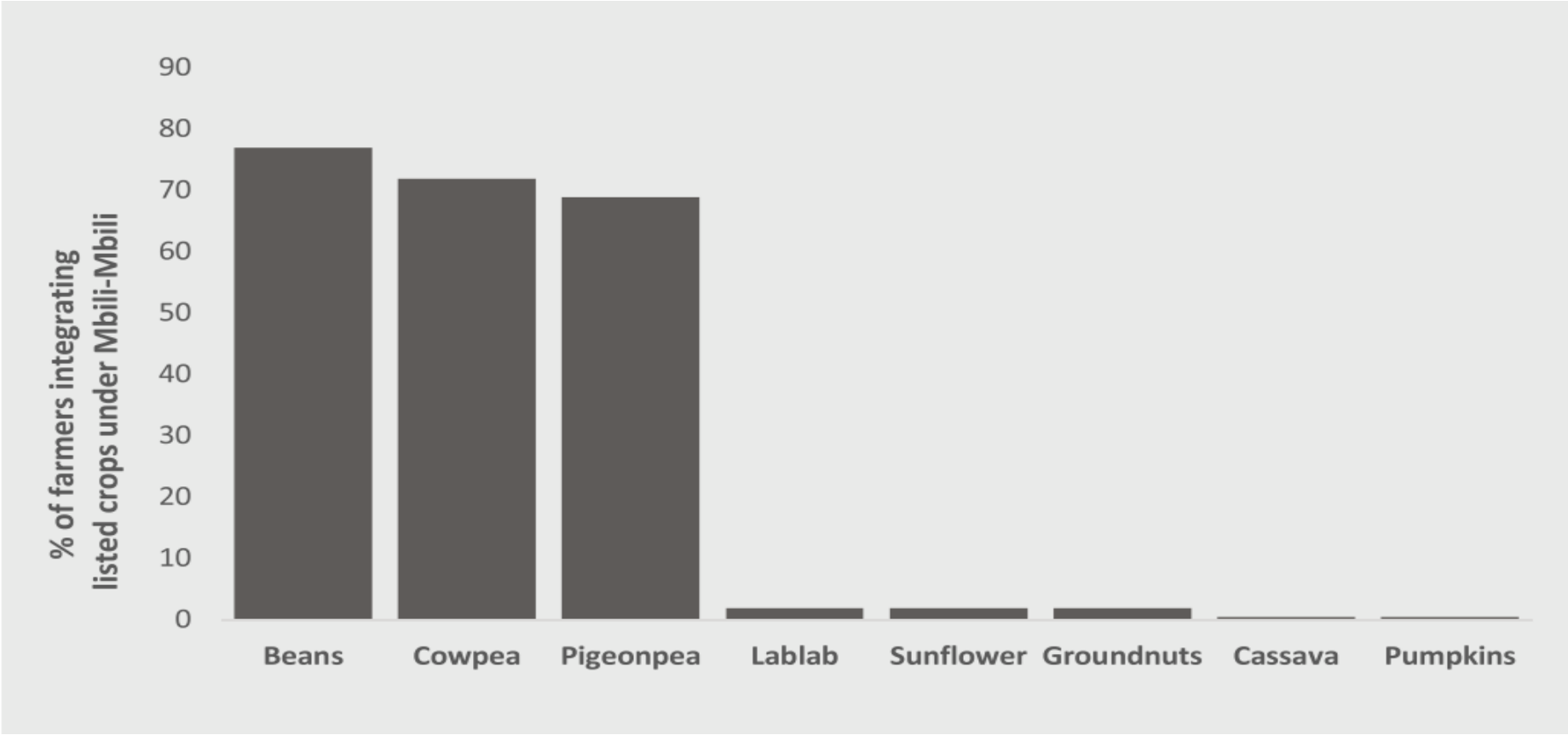
GROSS INCOME WITH COMMOM INTERCROPPING

GROSS INCOME WITH MBILI-MBILI

Adaptations of Mbili-Mbili

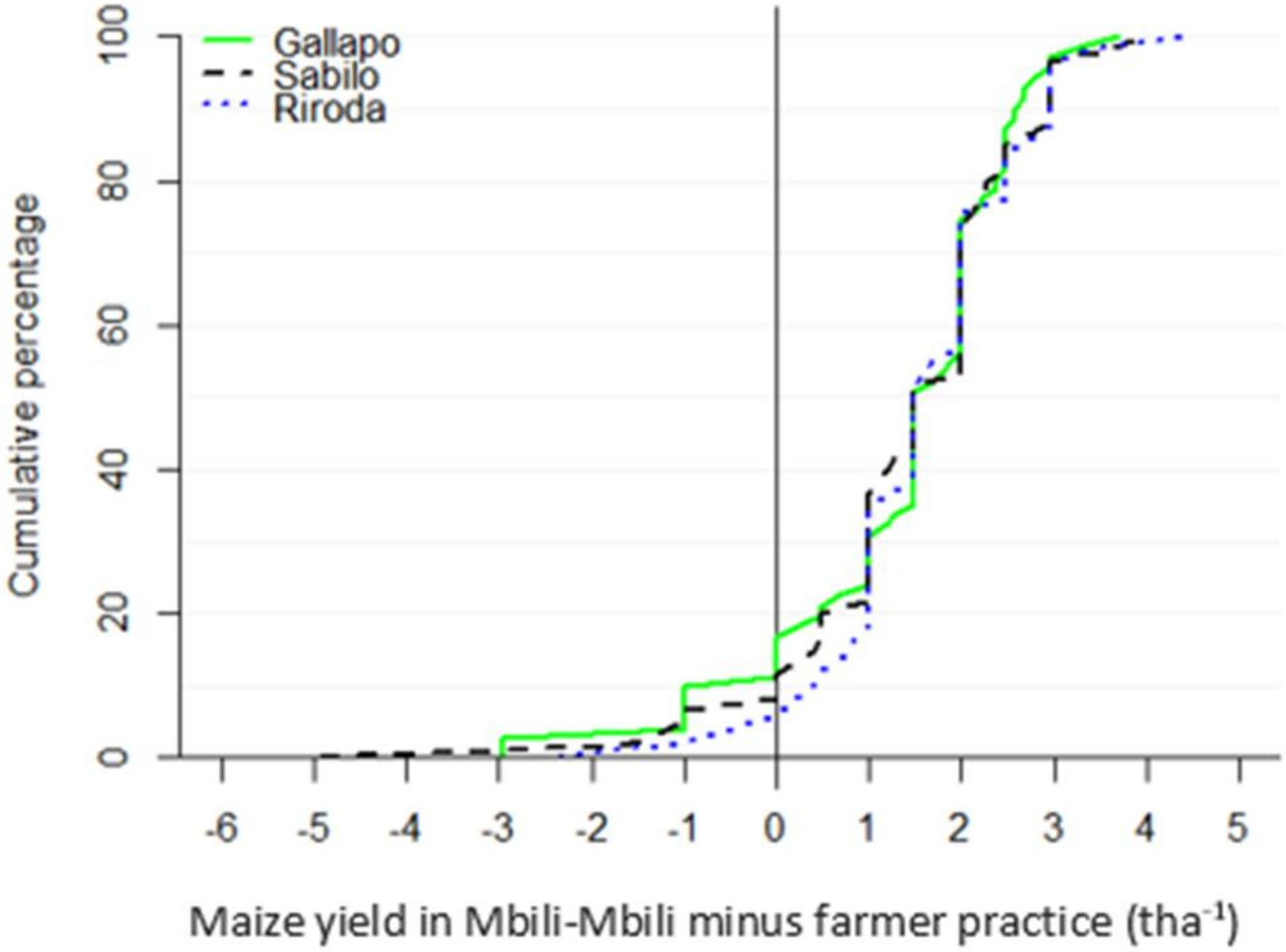
- 225 tested Mbili-Mbili on 0.25 acres

Crops grown under Mbili-Mbili

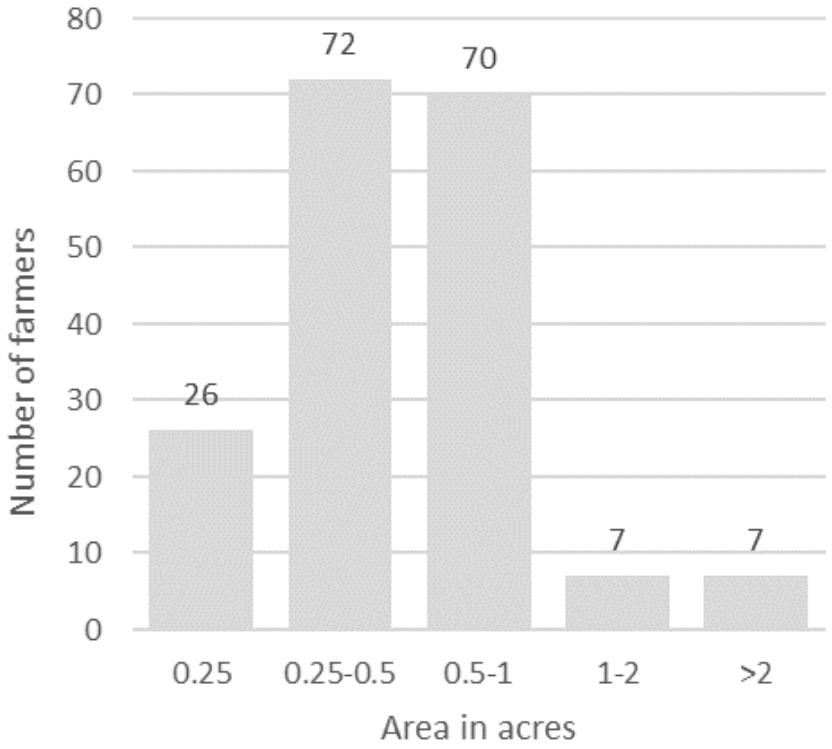


- 56% farmers modified crops in Mbili-Mbili

Maize yield difference



Land allocations



Gender perceptions

- 10% more female than male farmers preferred cowpea over beans and pigeonpea
- 14% more female farmers in FHH modified design relative to females and males in MHH
- Female managers in FHH did not perceive labor as a constraint as much as female and male managers from MHH

Implementation challenges

- Labor intensive at planting, but reduces during weeding
- Time consuming due to precision required

Summary

- Doubled-up legume involves losing or gaining
- Has low investment capital <37%
- Proper weather prediction needed to reap max. benefits
- Mbili-Mbili is more risk averse
- Earning US$115 above improved maize-legume systems
- Enhances food diversification and ‘security’
- Mechanization to overcome labor challenges

Thank You

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