A Qualitative Assessment of Conservation Agriculture in the Angonia Highlands of Mozambique:
Perspectives from Smallholder Farmers

Philip Grabowski
M.S. Student at MSU
CARRS Department
What are the constraints to spontaneous adoption?

- Qualitative approach for generating hypotheses
- Focus on smallholder hand-hoe maize production
- Induced Innovation Model (Hayami and Ruttan) – efficient allocation of land, labor and capital
Methods

• In-depth semi-structured interviews
• Thematic analysis
• Labor and harvest details
• Measuring CA plots
Two forms of manual CA

• Basins with compost promoted by the Igreja Reformada em Mozambique (IRM)
• Direct seeding with fertilizer and herbicides promoted by Total Land Care (TLC)
Results

• CA addresses a priority need – increased maize production
• Little sign of adoption beyond plots where inputs provided by NGOs
• Constraints - nutrient availability, labor requirements and profitability
CA requires fertility supplements

• Conventional tillage preferred where fertilizer is unavailable
• Several farmers disadopted when IRM stopped giving out fertilizer
• Compost is not as effective and is too labor-intensive for use at large scale
• Most farmers buy fertilizer for use on potatoes
Labor changes with CA

- CA moves less soil but does it save labor?
- Less time on physically demanding tasks but no statistical difference in hours/Ha
- Basins - land preparation takes longer
- Weed pressure is greater requiring either more labor or herbicide use
Profitability of Herbicide use

- Weeding 320 hours/Ha
- Weeding 800 hours/Ha
- Herbicide cost/Ha
Profitability of CA maize - TLC

- Purchased inputs
- Combined inputs and labor
- High maize price
- Low maize price

Area cultivated, quantity of labor and inputs

Price

Q_L

Q_H
Profitability of CA maize

- Fertilizer and herbicide use only profitable when subsidized or when high yields are sold at a high maize price
- Basins and compost not profitable at large scale because of high labor requirements
Implications for smallholder CA

• CA is limited to small “insurance” plots where constraints are lowest and the opportunity cost of labor is lower

• There is a need to work with farmers on their non-CA plots as well to reduce erosion and increase production utilizing their given amounts of labor and capital.
Poorest Land Quality

Minimum Tillage

Increased Weed Pressure
- Manual Weeding
- Herbicides
- Mulch
- Basins with compost
- Fertilizer

Decreased Nutrient Availability
- Rotation w/ legumes

Negative side effects of minimum tillage

Technical solutions that address these side effects

Constraints to solutions

Key productivity constraint

Technical solution for land quality constraint
Thank You