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Potential for market gardening practices in Mono, southern Benin, to transition to market gardening on living soil (MSV)

Introduction and problem statement

- ✓ Market gardening (15% of agricultural GDP) in Benin faces challenges of soil degradation due to unsustainable farming practices and climate change.
- ✓ Nature-based Solutions for soil degradation include agroecological practices such as *Maraîchage sur Sol Vivant* ***(MSV)*** which are promoted to restore soil life by reducing dependence on chemical inputs, but adoption remains limited. MSV emphasizes three principles: **no tillage**, **permanent soil cover**, and regular **organic matter input.**
- ✓ There is a lack of studies on adopted practices, perceptions, and the economic performance of different cropping systems according to MSV related-practices in West Africa.

Objectives

1. To identify the key soil management practices utilized by market gardeners in Mono that directly impact soil health.
2. To analyze interactions between soil management practices, farmer knowledge, and economic benefits within market gardening systems.
3. To determine main barriers and enabling factors to MSV adoption.

Figure 1 to 4 - Fieldwork 2025:
Left top: market gardening zone in the commune of Bopa.
Left bottom: Questionnaire administration on a market gardening site in Houeyogbé.
Right top: Questionnaire administration to a female market gardener in Grand Popo.
Right bottom: Key Informant Interview in Comè.

Methods

- ➢ Study area: Southern Benin, Mono Department (**5 *communes***)
- ➢ Quantitative: Survey **(n=297**) and Likert Scale **(n=16)**, including a cost-benefit analysis.
- ➢ Qualitative**:** Key Informant Interviews (KIIs) **(n=8)**.

Results

Objective 1: Identified soil management practices

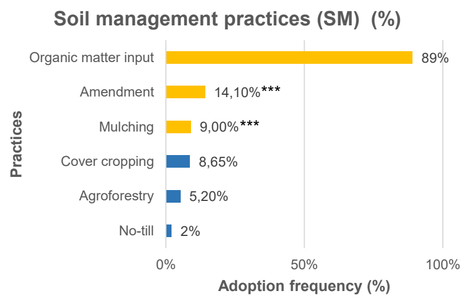


Figure 5: Adoption of SM practices and association with production system

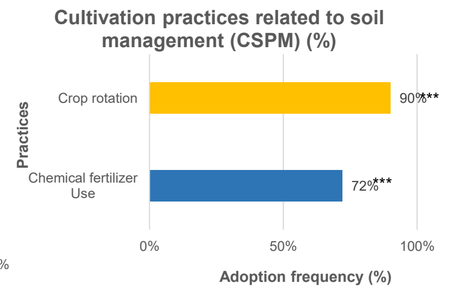


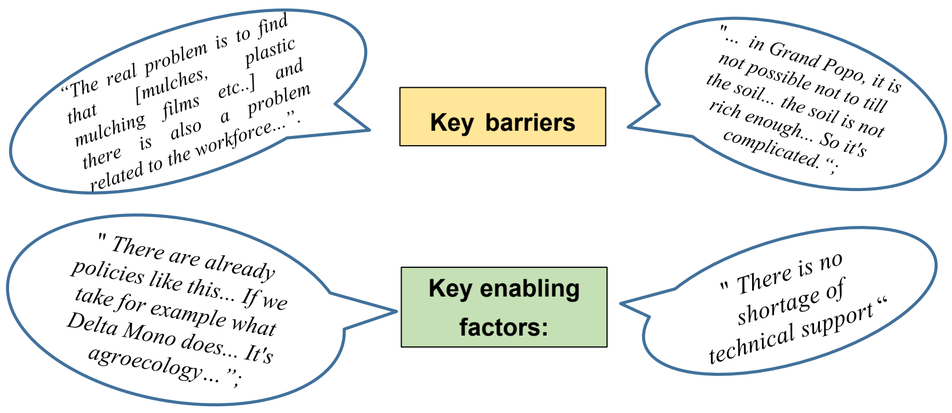
Figure 6: Adoption of CPSM and association with production system

Dominant production system: Agroecological System (orange); Conventional System (blue); *** p<0.001; other practices not significantly associated to Production System

Objective 2: Relationship between practices, knowledge and economic indicators

- ✓ Adoption of some practices, Gross Margin (GM) and Return On Investment (ROI) are significantly influenced by access to training and a better soil health knowledge;
- ✓ Organic Matter Input (OMI) & Crop Rotation (CR) lead to better economic performance;
- ✓ Cover cropping and chemical fertilizer have negative effects on economic indicators.

Objective 3: quotes from KIIs



Conclusion and recommendations

The agroecological cropping system is the most profitable; MSV adoption has potential in the study area but adoption is constrained by some factors that need to be met.

Recommendations: strengthen training and field schools; facilitate financial/institutional support for subsidies and input access; and develop markets for agroecological produce.

Partner institutions:

UNIVERSITY OF NAIROBI

zef Zentrum für Entwicklungsforschung Universität Bonn

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