Water in Agriculture: Agriculture Water Management in Rainfed and Irrigated Farming Systems

January 31, 2024

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Speakers

Robert Bertram, Chief Scientist for Food and Agricultural Development, REFS, USAID

Ku McMahan, Deputy Director Technical Assistance Division, US International Development Finance Corporation

Nicole Lefore, Director, Feed the Future Innovation Lab for Irrigation and Mechanization Systems

Marie-Soleil Turmel, Technical Advisor Catholic Relief Services Water Smart Agriculture Platform

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The U.S. Government's Global Hunger & Food Security Initiative
Strengthening investments in agricultural water management
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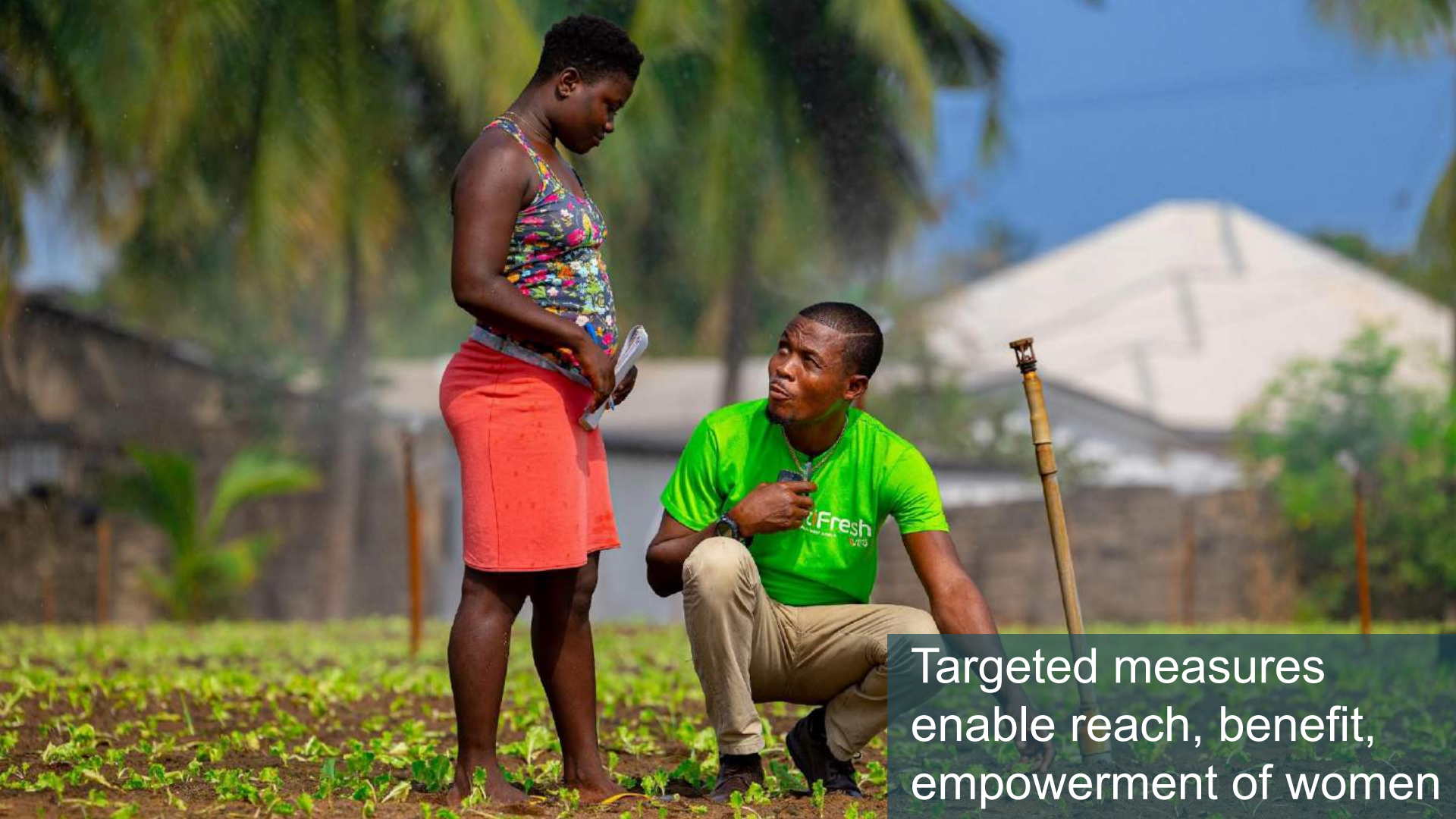
University of Nebraska System


Irrigation supports
nutrition & resilience


Enables profitability,
commercialization

Holds high potential
with manageable risks


Market system
interventions
strengthen outcomes


Targeted measures
enable reach, benefit,
empowerment of women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Focal topics

- Develop **suitable socio-technical bundles** that address the needs of specific producer types, including women, youth, and vulnerable people.
- Establish and **strengthen institutions** for natural resource governance and climate resilience.
- Support **inclusive market systems** that enable scaling of profitable irrigation and mechanized equipment.
- Develop **human resource capacity** that supports mechanization and irrigation system resilience.
  Formulate **strategies for nutrition-sensitive** mechanization and irrigation that **safeguard and enhance health** and inclusivity.


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Managing Soil to Manage Water:
Water Smart Agriculture to Improve the Productivity and Climate Resilience of Rainfed Production Systems

Marie-Soleil Turmel, Catholic Relief Services

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ASA AGUA Y SUELO PARA LA AGRICULTURA

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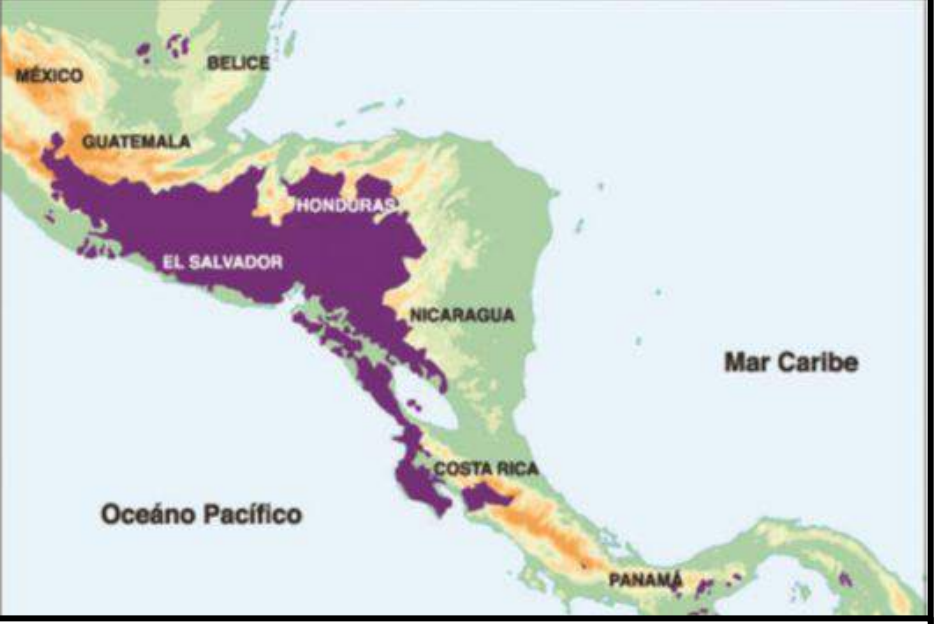

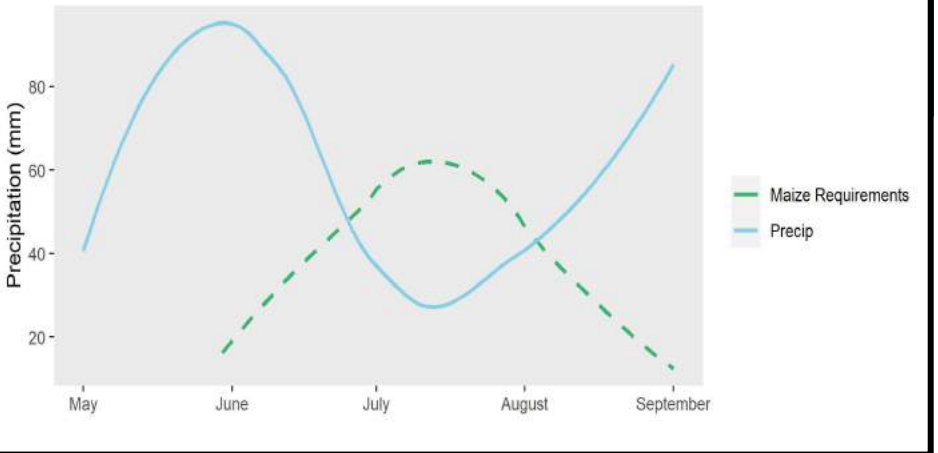

The Central American Dry Corridor

- 74% agricultural soils degraded
- High vulnerability to climate variability, erratic rainfall
- Frequent yield damage staple crops
- 8 million people affected by food insecurity

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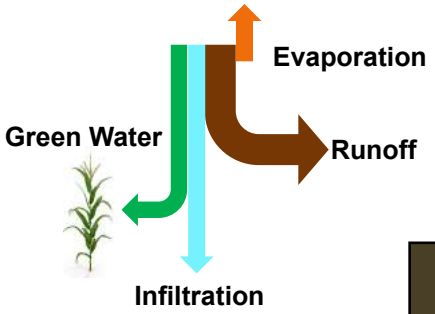
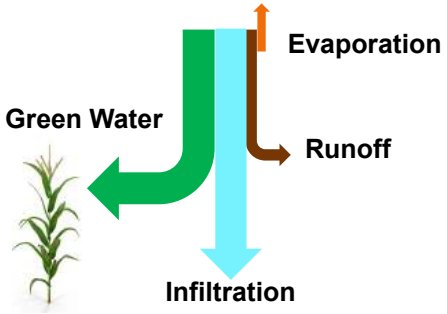
Managing Soil to Manage Water

Poorly-Managed Degraded Soils



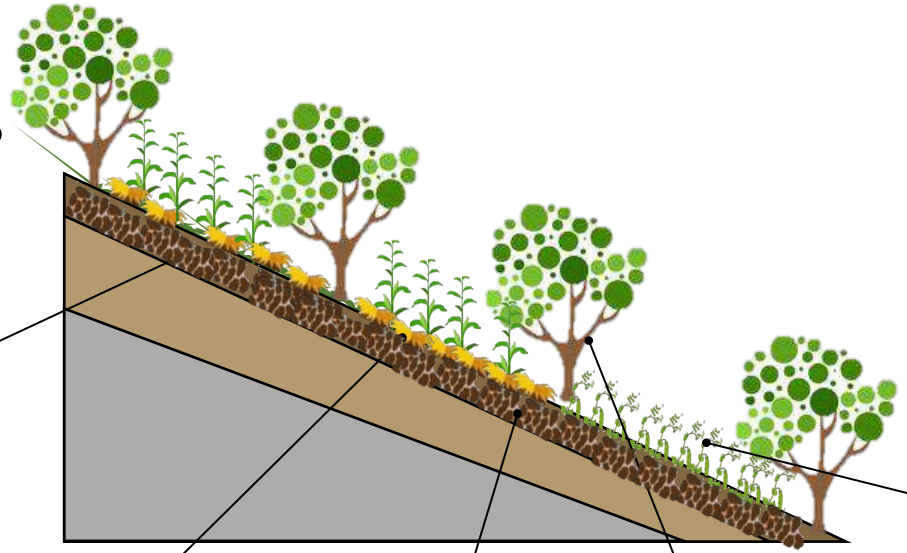
Soil Restoration

Well-Managed Healthy Soils



(Falkenmark and Rockstrom, 2013; Figura ISRIC 2017)

WSA Practices



Minimal Soil Movement

Crop Residue Retention and Permanent Cover

Integrated Soil Fertility Management

Agroforestry

Crop Diversification and Cover crops

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Soil degradation in rainfed hillside annual cropping systems.

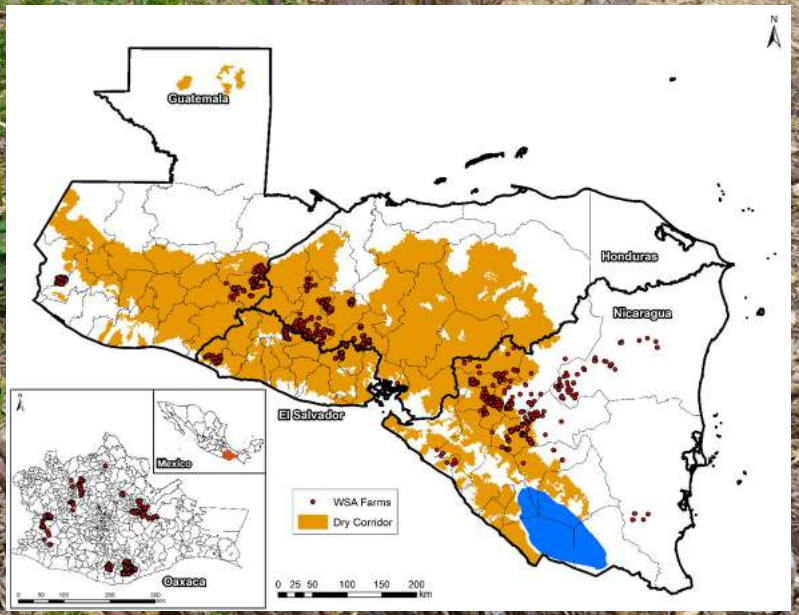

Kuxur Rum

Jack Bean (*Canavalia* sp.) *c*over crop and crop residues retention keeps soil well covered.

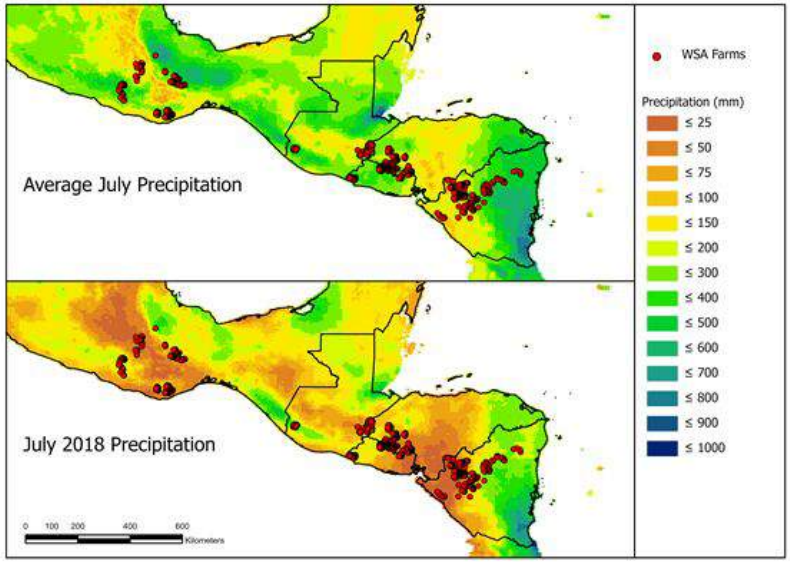
Collaborative Evidence Building

Innovation Plots on > 3,000 farms

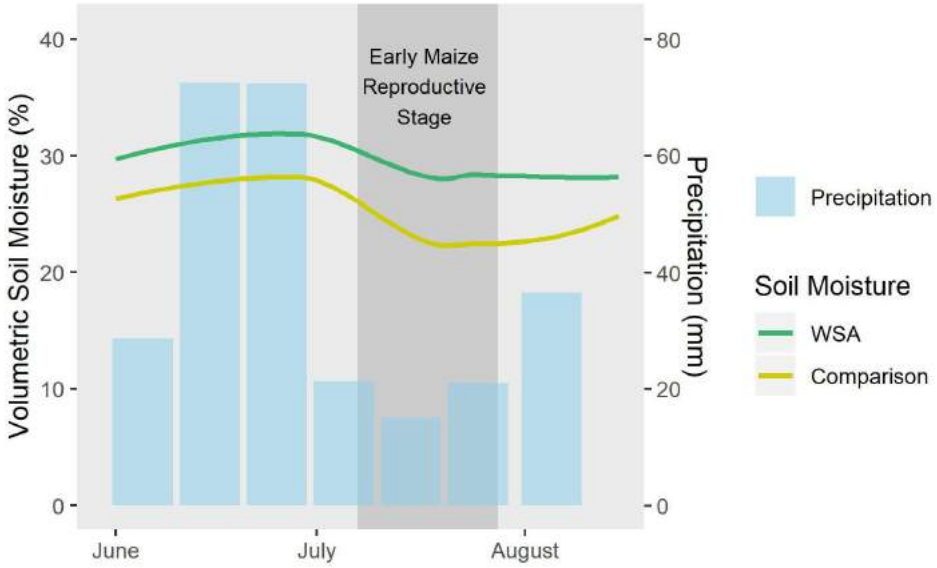
Monitoring: Soil moisture, soil health indicators, productivity, costs and income



WSA Increases Soil Moisture and Climate Resilience



(CHIRPS precipitation data; Funk et al. 2014



(Turmel et al., 2023)

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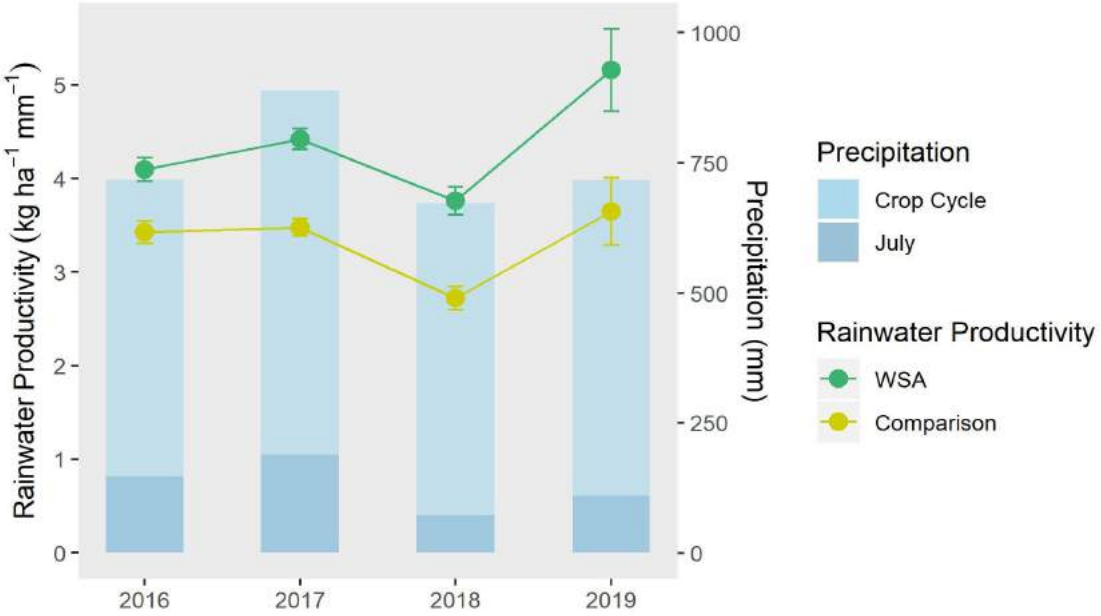
More Crop per Drop



(Maize Rainwater Productivity in WSA; Turmel et al., 2023)

Managing soil to manage water at farm and landscape level

Improved infiltration 1000 m^3 of water/ha/year (Keough et al., 2023)

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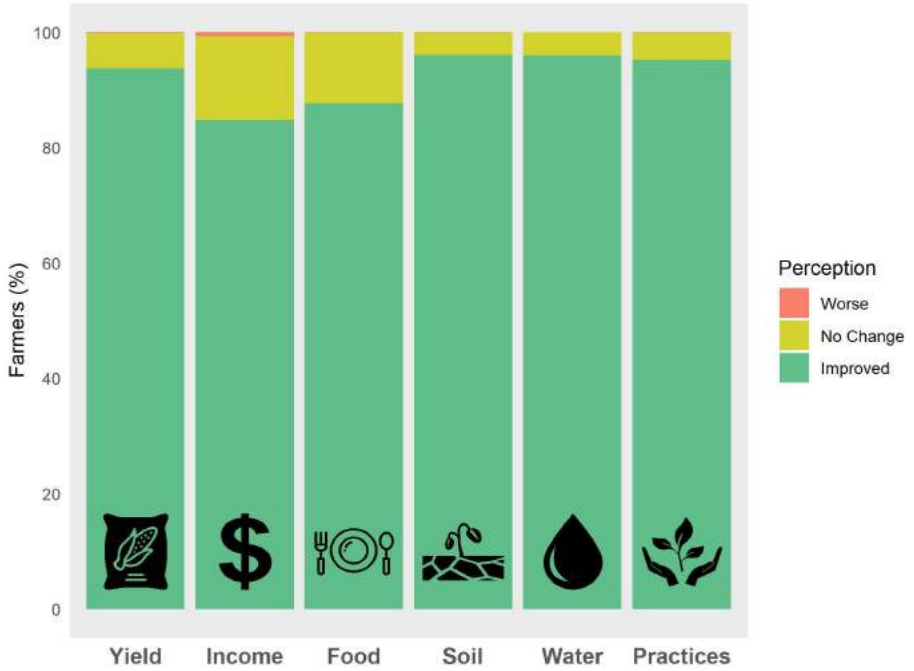
Farmer Perceptions of WSA



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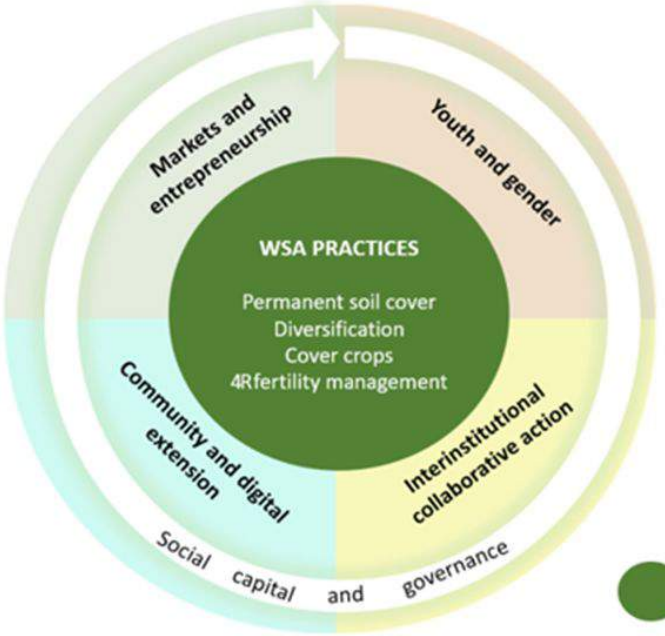
Taking WSA to Scale



- WSA foundation of Agriculture and Livelihoods programming
- CRS LACRO Goal: 500,000 families by 2030
- Over 100 institutions collaborating

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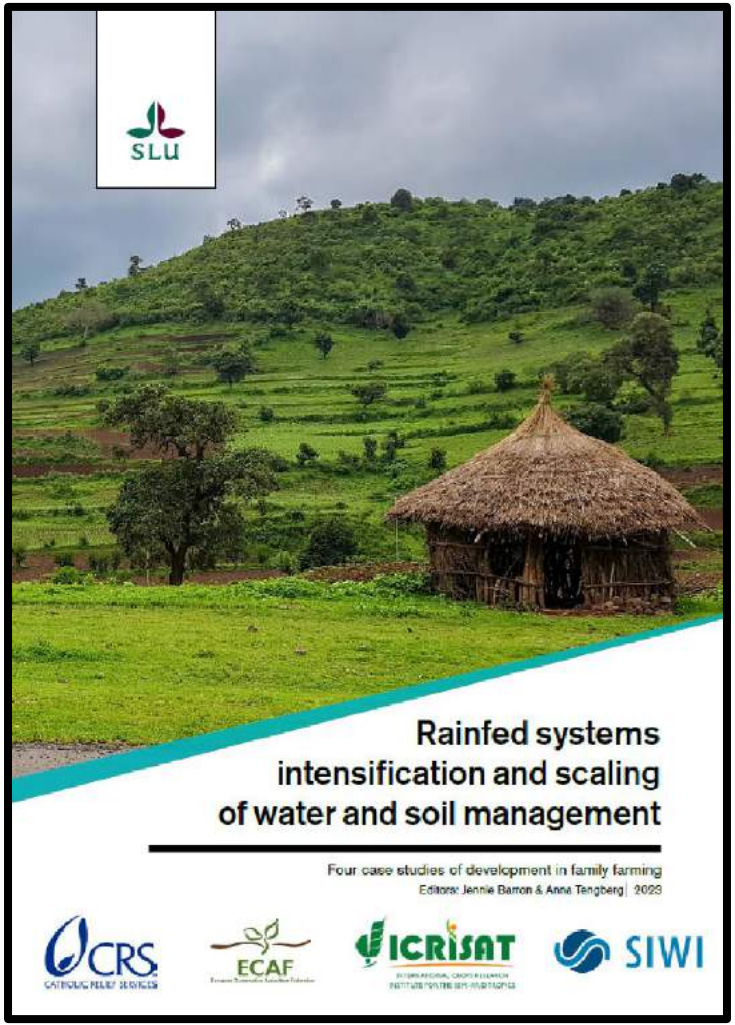

Turmel, M.S.; Rosenow, K.; Schmidt, A.; Aburto-Sanchez, E. & Hicks, P. 2023.

Scaling water smart agriculture to improve the productivity and resilience of rainfed smallholder production systems in Mesoamerica.

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Thank You

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