PARTNERSHIPS FOR SCALING

CLIMATE SMART AGRICULTURE (P4S - CSA)

Closing the Gap between Science and Policy for Climate-Smart Agriculture

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World Agroforestry Centre

CGIAR

RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CCAFS

CIAT

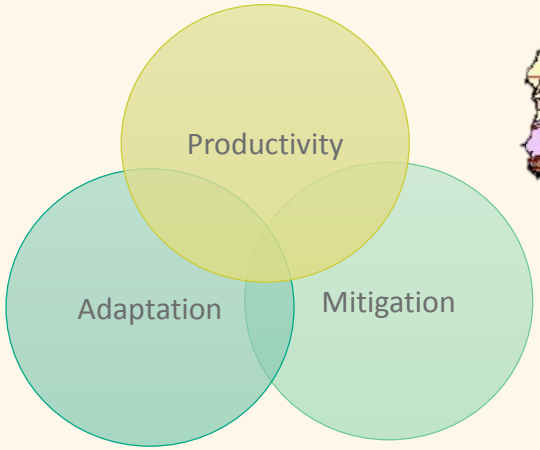
International Center for Tropical Agriculture

Since 1967 *Science to cultivate change*

The Challenge for CSA Programs

Many Practices

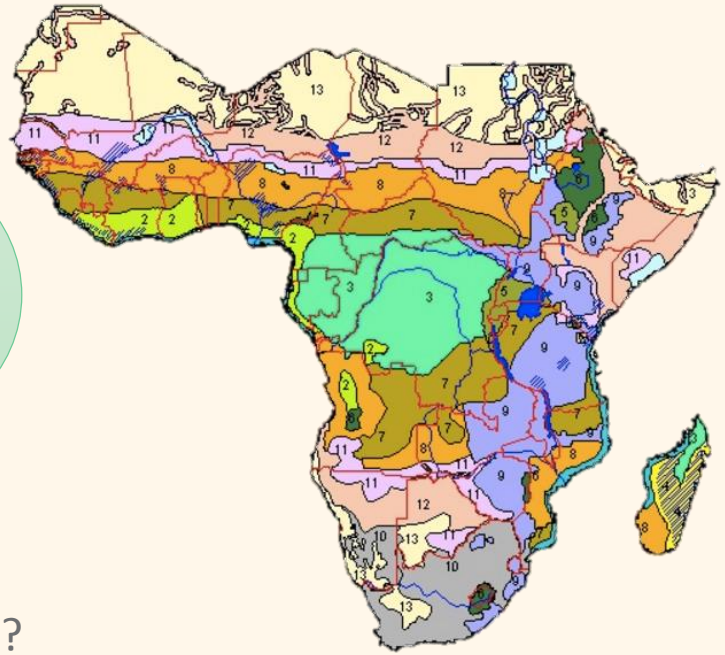
Many Goals



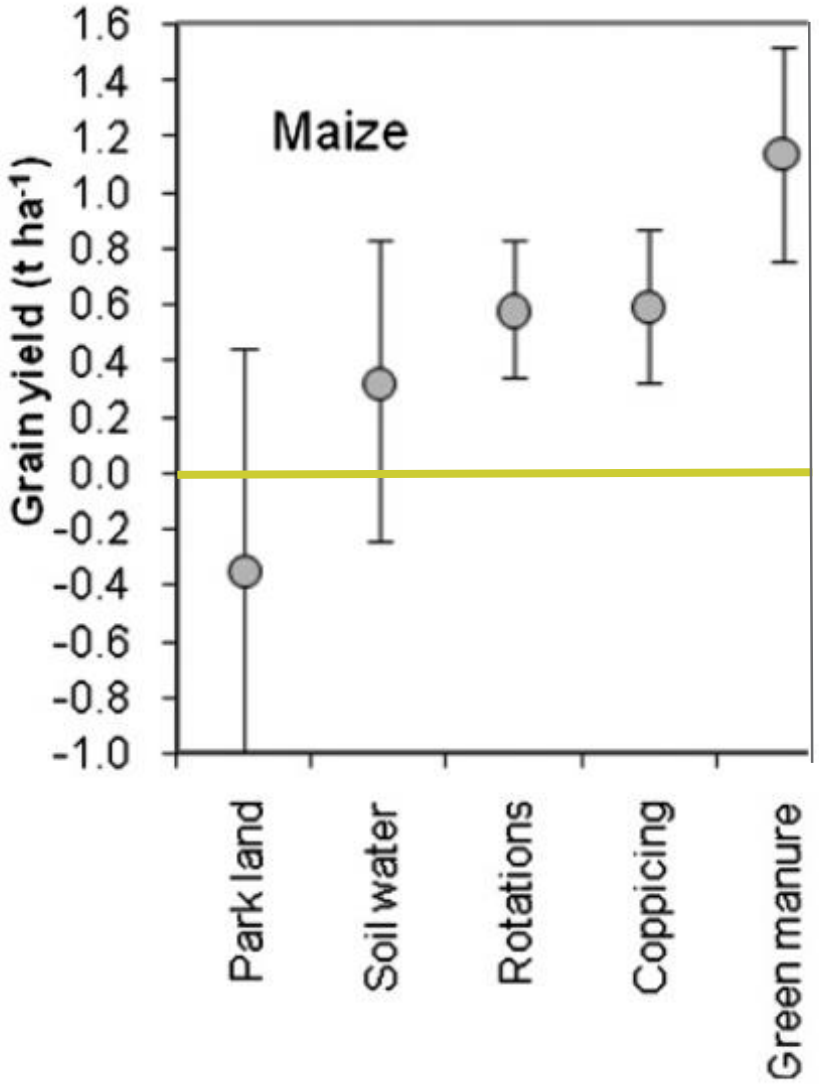
Of What?
- Most common crops?
- Most vulnerable crops?

For Whom?
- Most farmers?
- Most vulnerable farmers?

Many Contexts

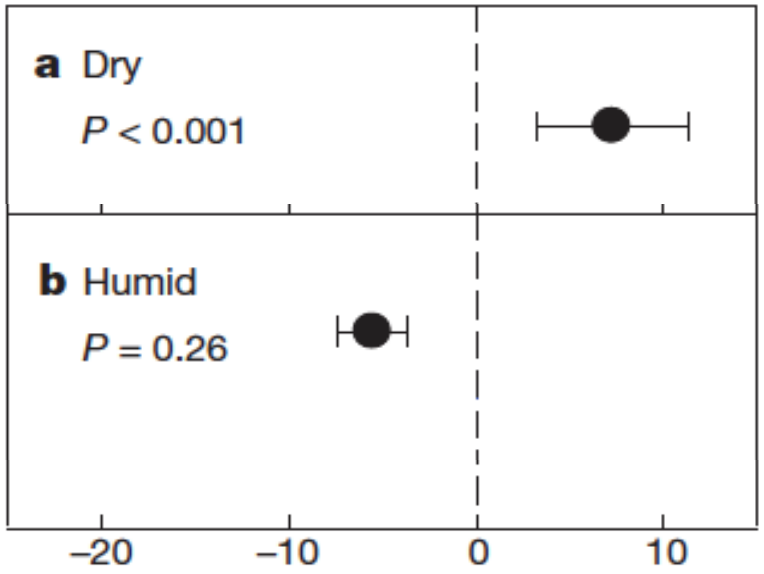


The Importance of Context

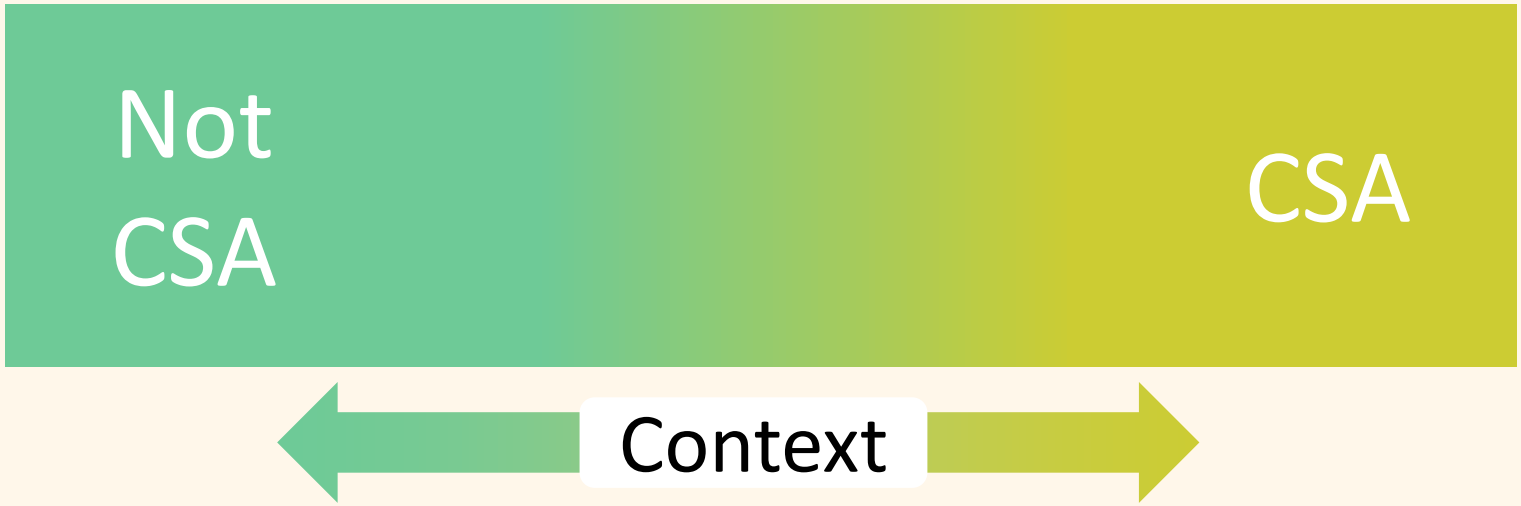


Bayala et al. 2012

Conservation Agriculture

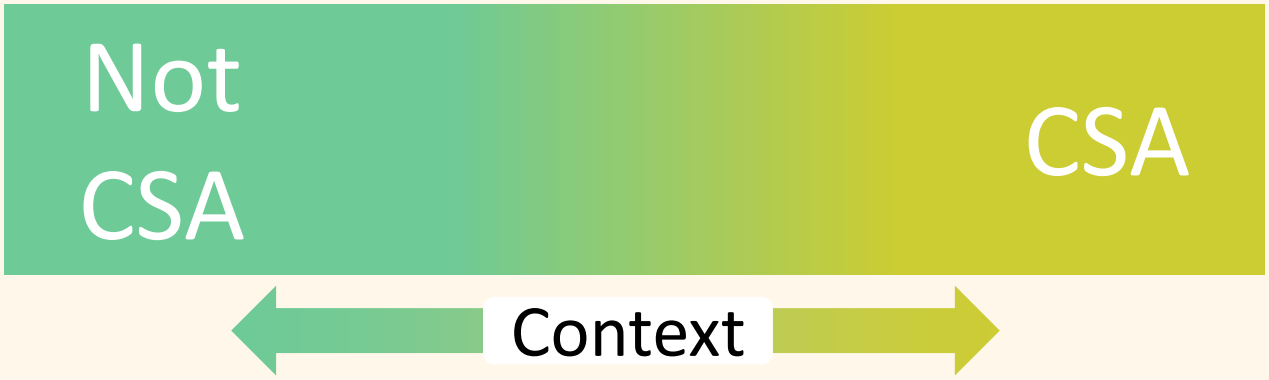


Pittelkow et al. 2014



Many practices/programs/policies can be CSA **somewhere**

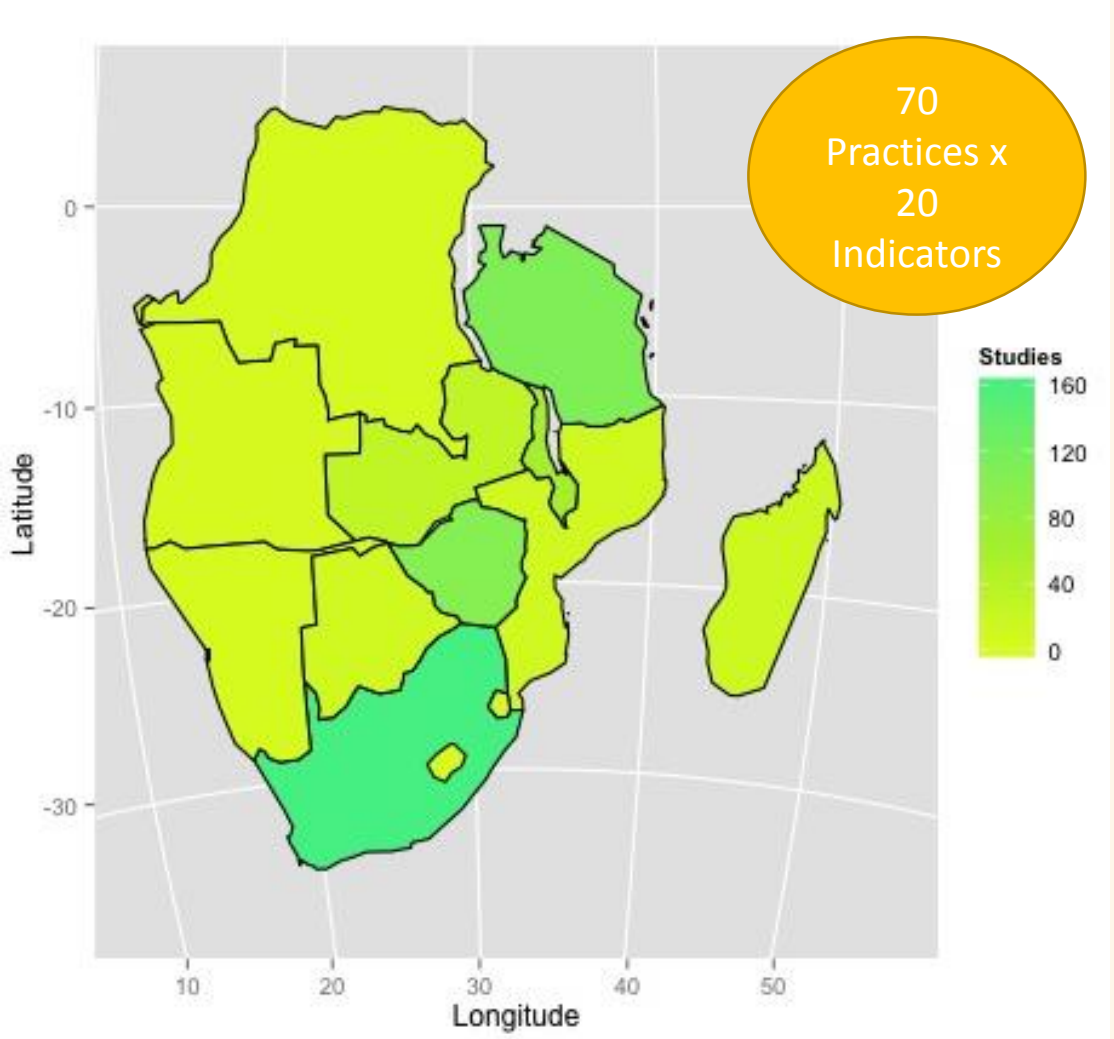
But **none** are likely CSA everywhere



How do we determine the best-bet practices to scale up?

- Bring together available evidence
- Understand the context
- Extrapolate to novel contexts

What is the Evidence for CSA in Southern Africa?



Key word search

~ 6000 studies

Abstract/title review

Full text review

526 Studies

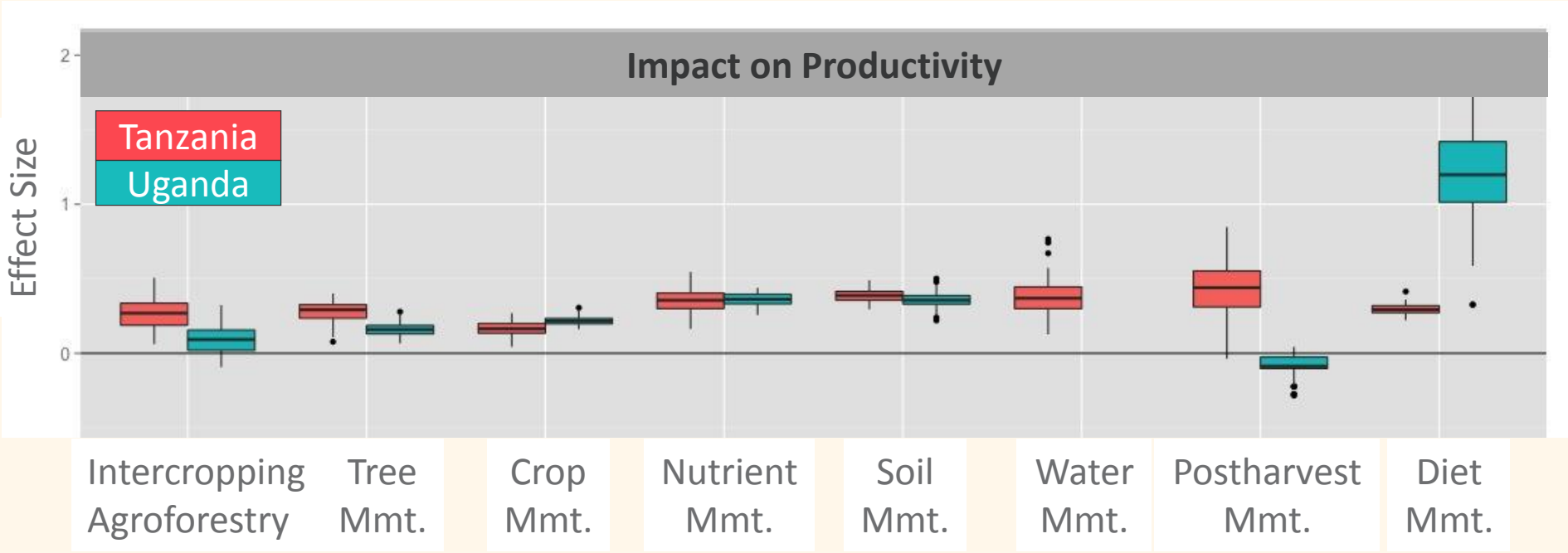
Data extraction

~60,000 data points

World Agroforestry Centre · CGIAR · Research Program on Climate Change, Agriculture and Food Security · CCAFS · CIAT International Center for Tropical Agriculture Since 1967 Science to cultivate change · FAO · IFAD Investing in rural people

Impact of CSA varies…

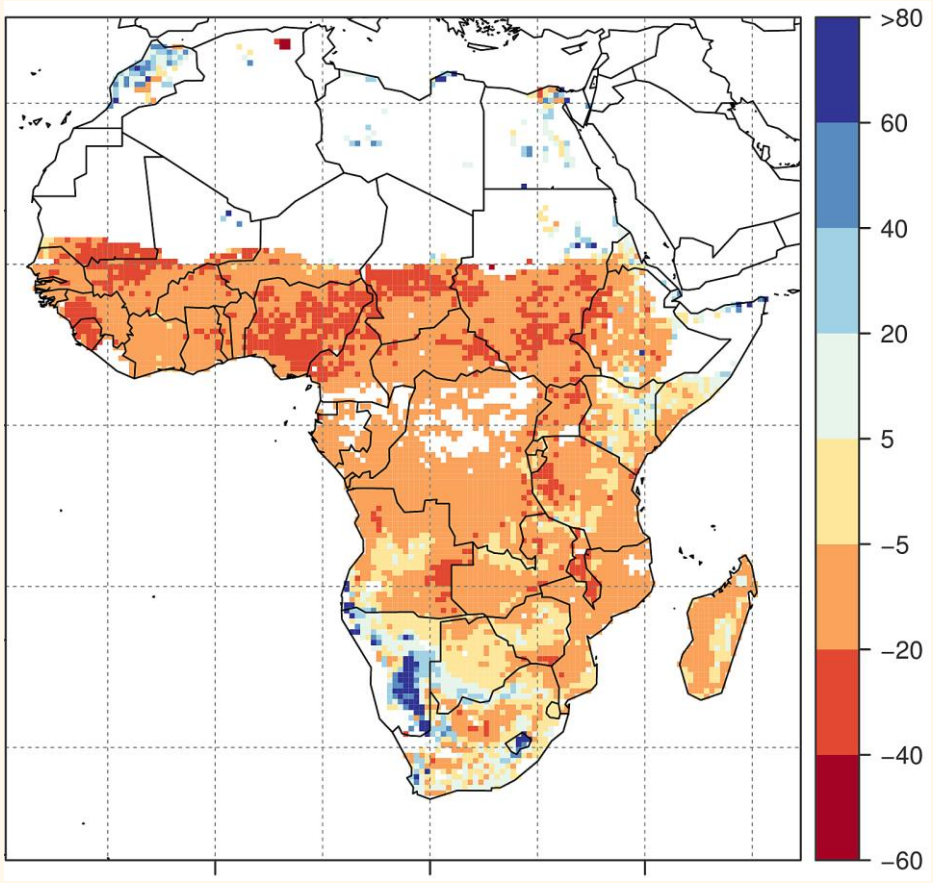
By Location:



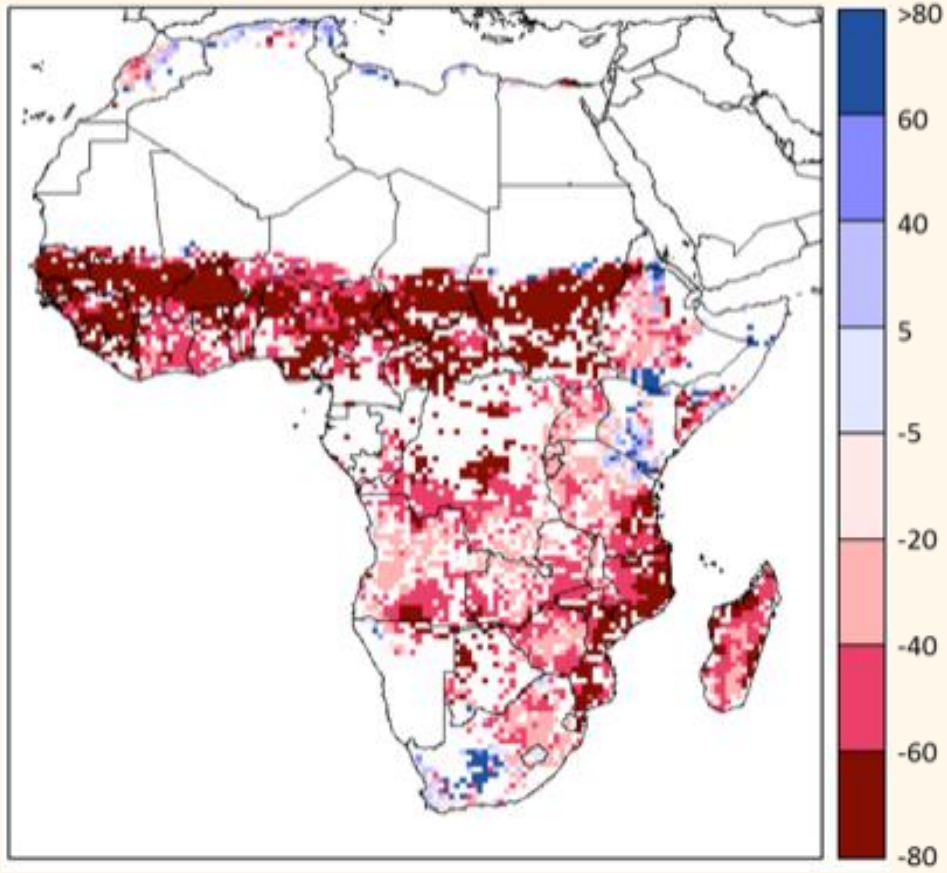
Due to differences in climate, soil, farming system, etc.

Climate Change Impacts

Maize



Beans

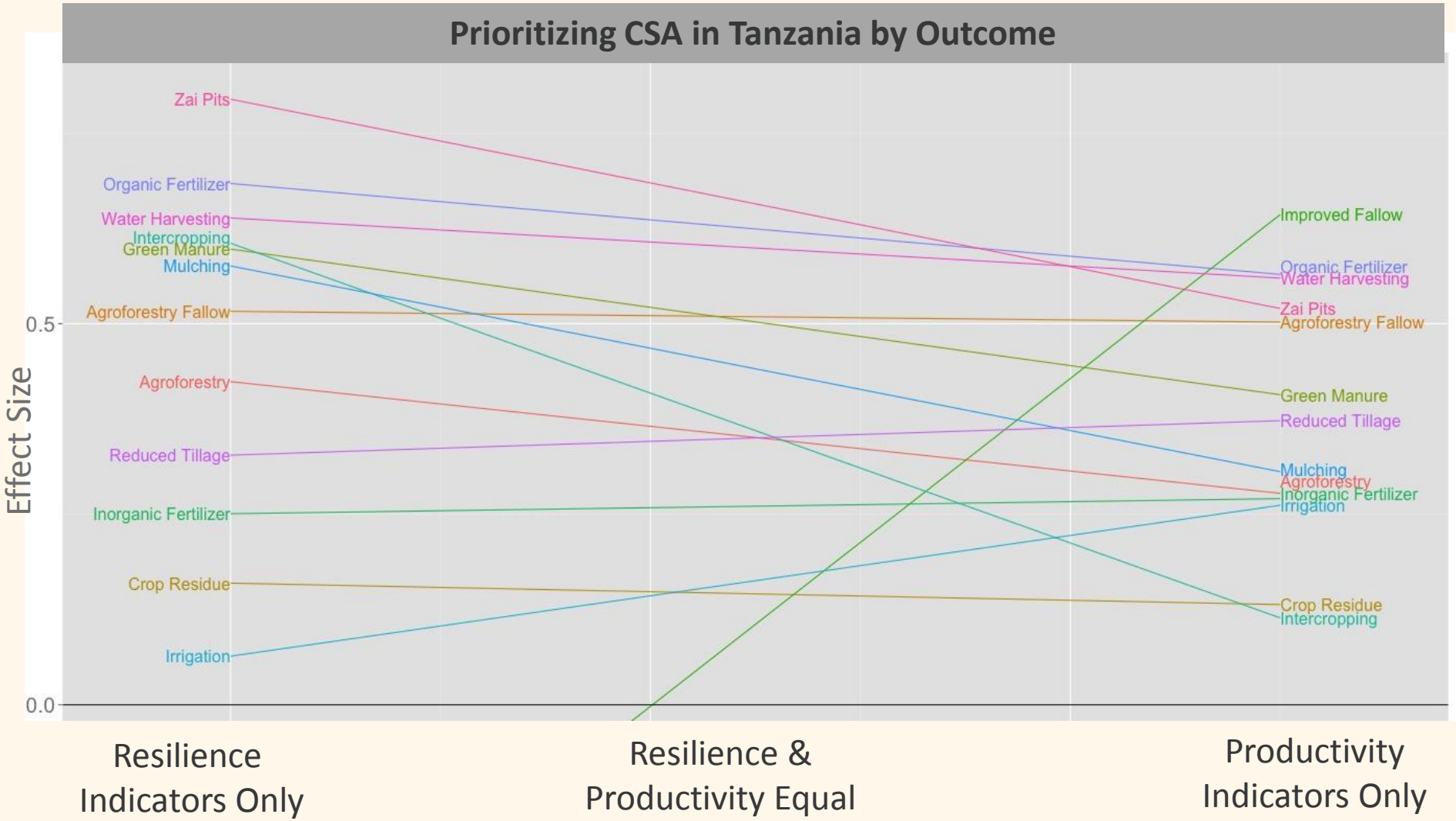


Change in production 2050 vs. 1971-2000 under RCP 8.5

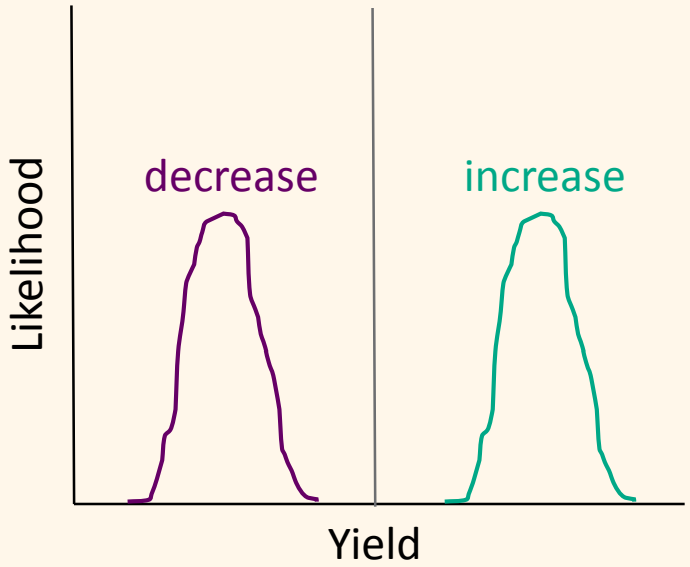
Ramirez & Thornton 2015

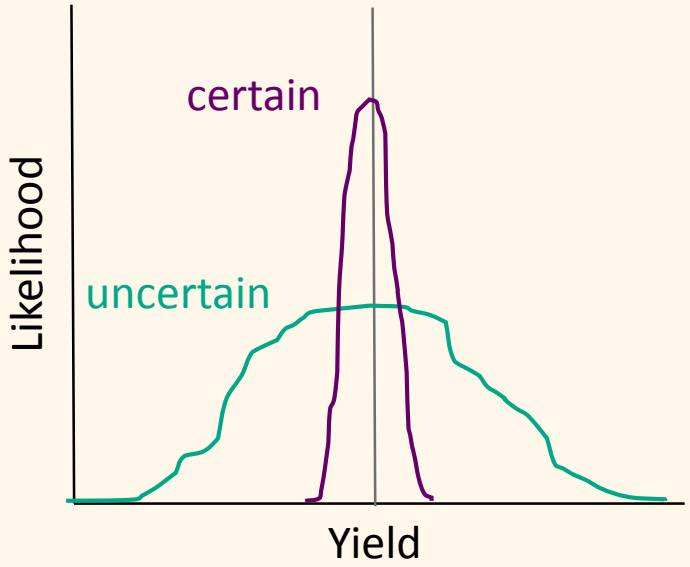
Impact of CSA varies…

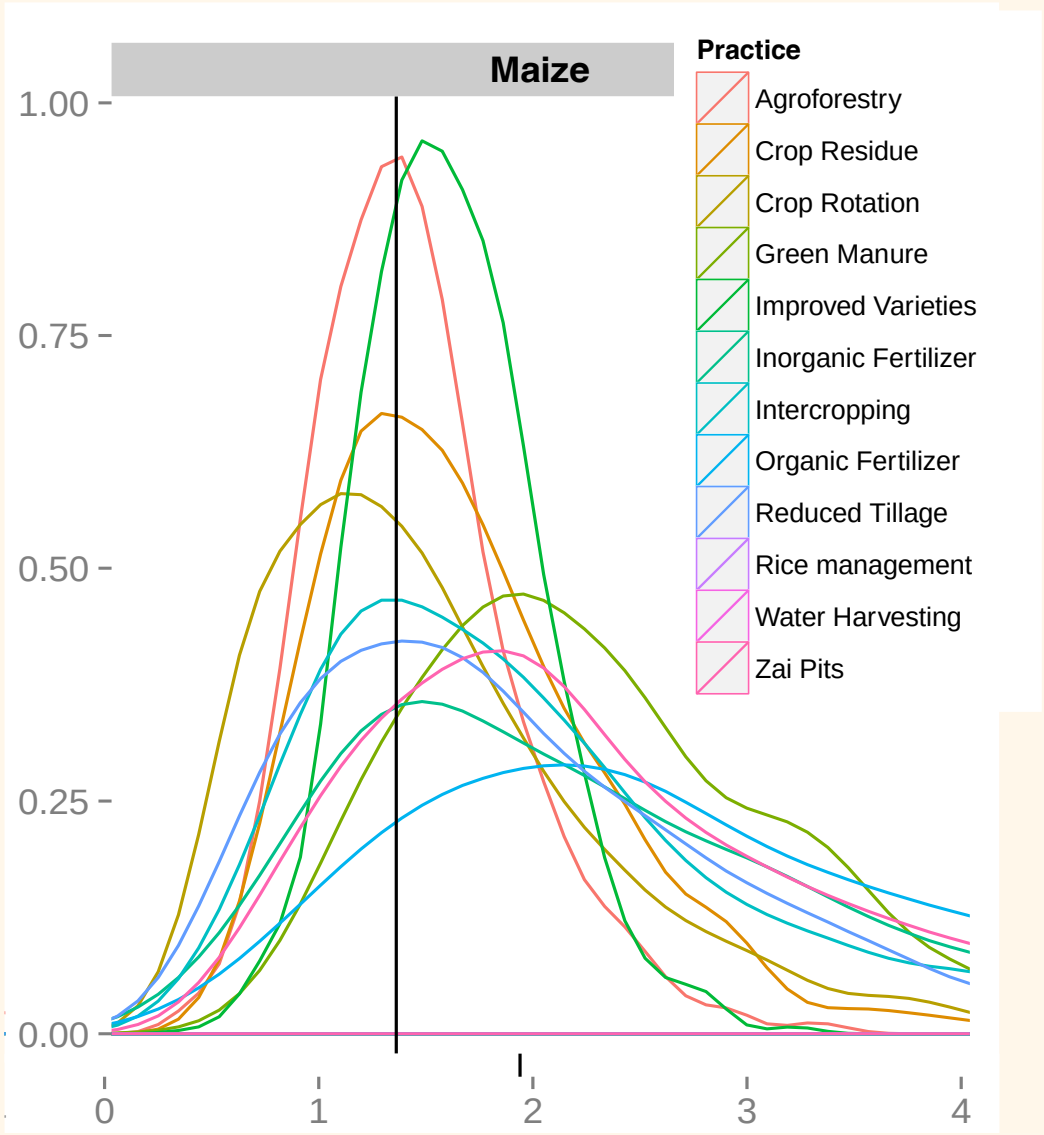
By Outcome:



CSA for Maize in Tanzania





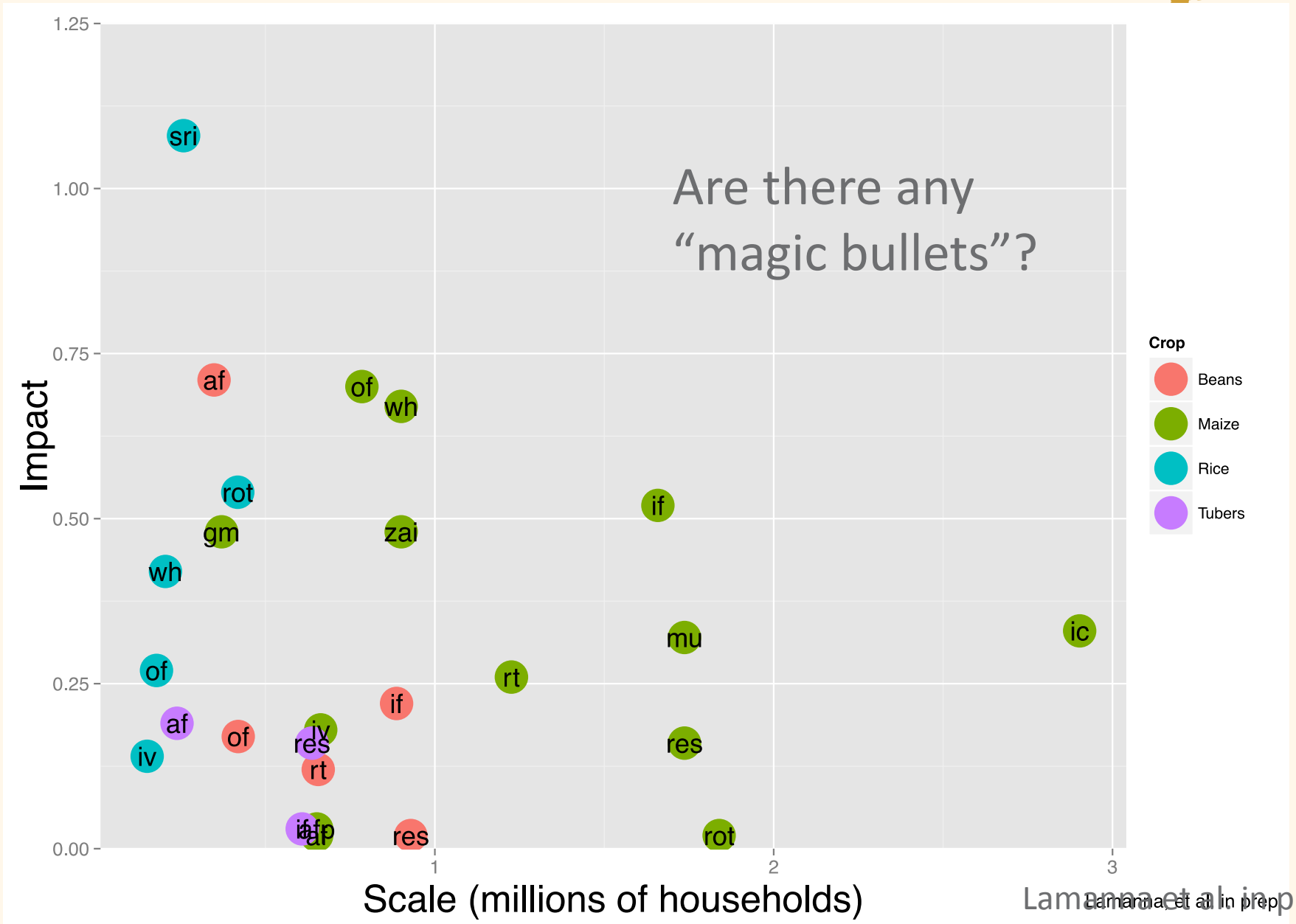


Lamanna et al. in prep

Risk vs. Reward of CSA

Lamanna et al. in prep

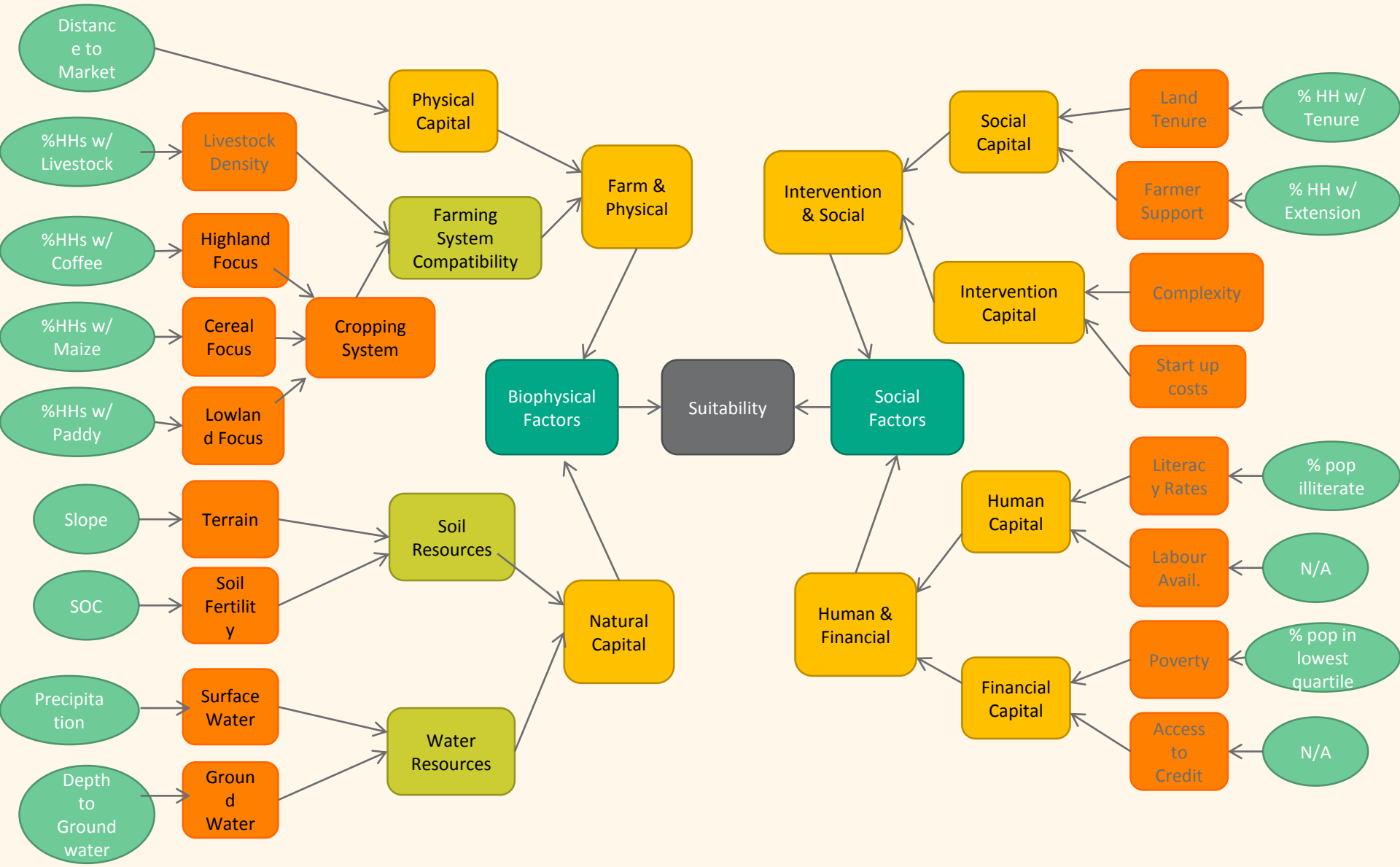
Impact vs. Scale for CSA



Closing the Gap

What is the CONTEXT?
What are the PRIORITIES?
What are the OPTIONS?

A BBN for Water Use Technologies



A BBN for Water Use Technologies

Drip Irrigation

Highest suitability with market access, water availability, and social assets

Charco Dams

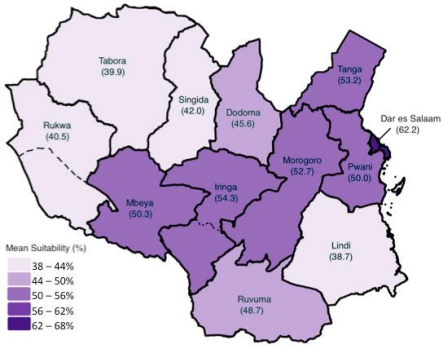
Universally high suitability due to low start up costs and low reliance on social assets

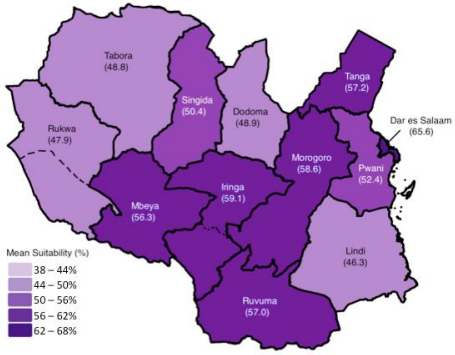
Water Harvesting

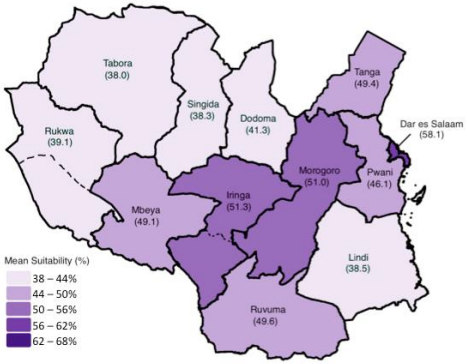
Low overall suitability due to high costs, and high dependence on social, financial and human capital

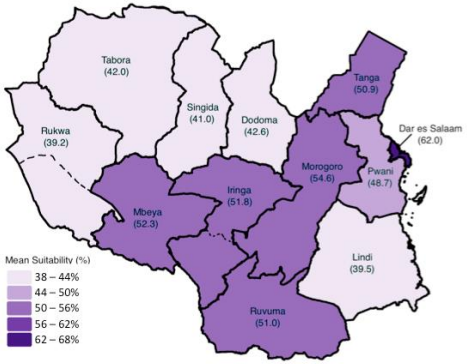
System of Rice Intensification

Highest suitability in rice growing regions









Representation of CSA option suitability that accounts for local context and knowledge, stakeholder preferences, and uncertainty

Lamanna et al. in prep

The Challenge for CSA Programs

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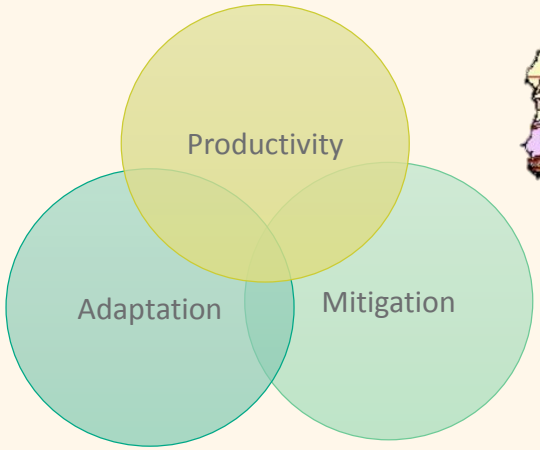
Many Goals



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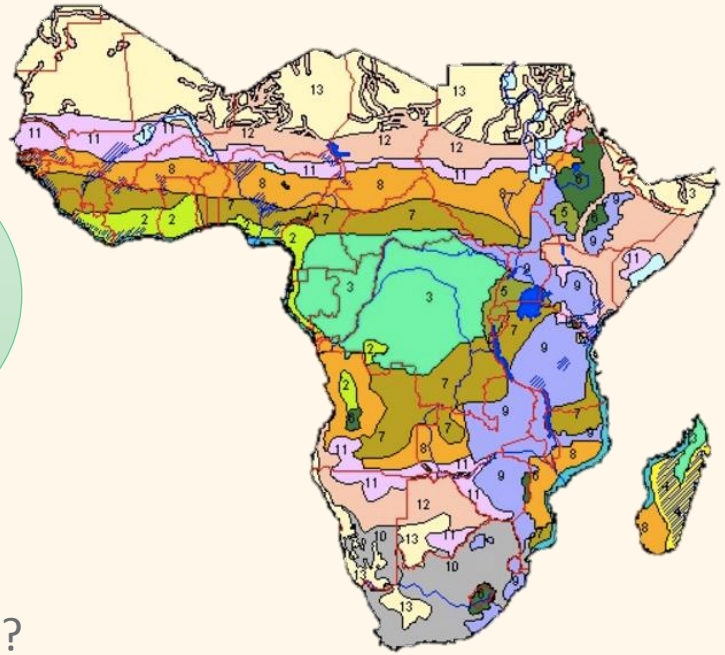
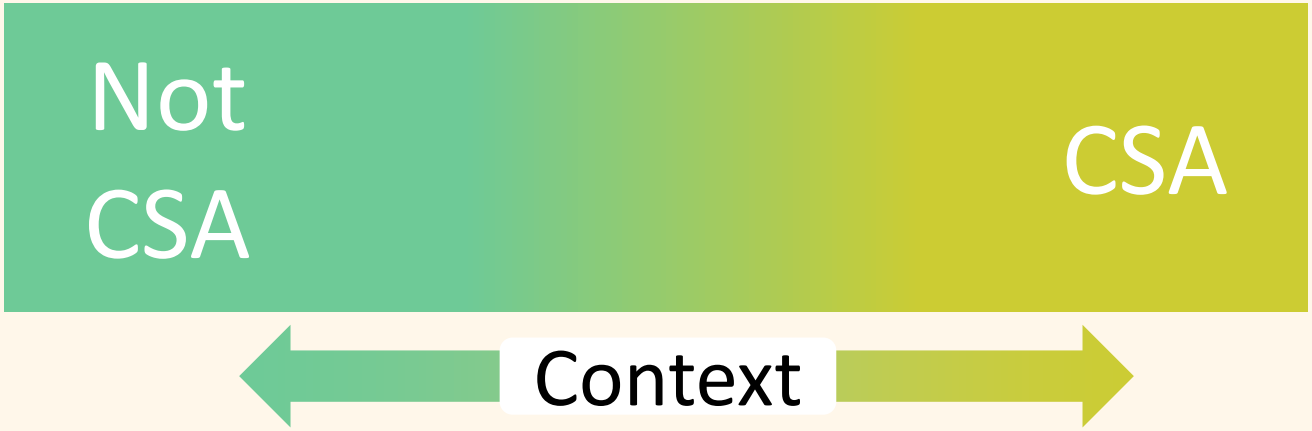


There are likely no magic bullets!



Prioritization is key to achieving CSA goals:

- What outcomes are most important?
  - For whom? And where?
  - Consider uncertainties
- Bring together local stakeholders + relevant data

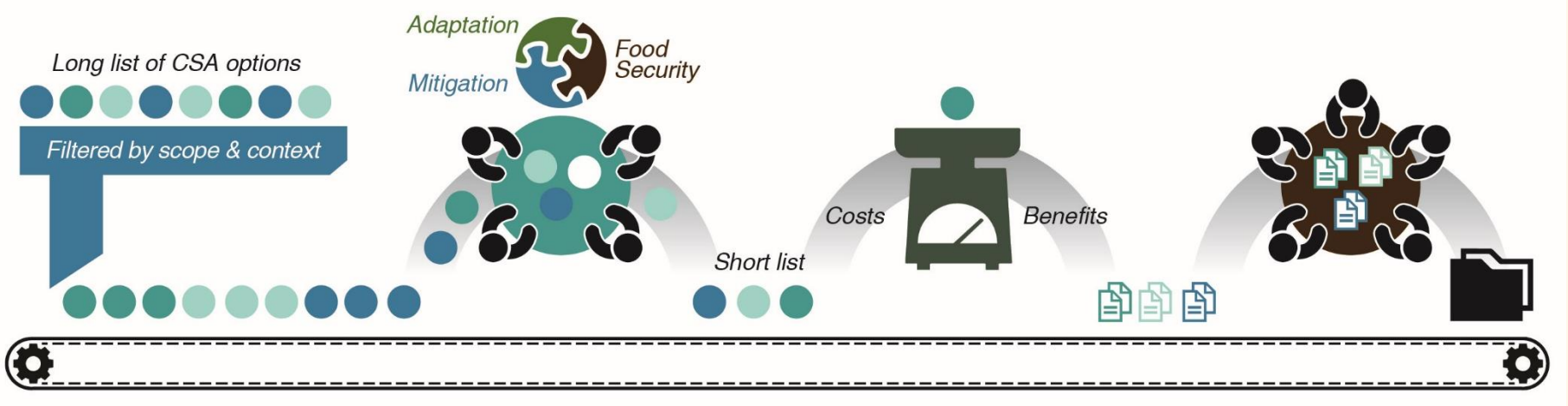
Rosenstock & Lamanna

Priorities Matter to CSA Programs

Equal Adaptation & Productivity	Adaptation Only	Productivity Only	Maize Yield Only	Maize Yield considering adoption rates
Green Manure	Green Manure	Green Manure	Organic Fertilizer	Inorganic Fertilizer
Mulching	Organic Fertilizer	Water Harvesting	Water Harvesting	Intercropping
Organic Fertilizer	Mulching	Mulching	Inorganic Fertilizer	Water Harvesting
Water Harvesting	Reduced Tillage	Agroforestry	Green Manure	Organic Fertilizer
Pruning	Crop Residue	Organic Fertilizer	Zai Pits	Zai Pits
Inorganic Fertilizer	Pruning	Inorganic Fertilizer	Intercropping	Mulching
Agroforestry	Inorganic Fertilizer	Pruning	Mulching	Reduced Tillage
Crop Residue	Intercropping	Intercropping	Reduced Tillage	Crop Residue
Reduced Tillage	Agroforestry	Crop Residue	Improved Variety	Green Manure
Intercropping	Water Harvesting	Reduced Tillage	Crop Residue	Crop Rotation
			Agroforestry	Improved Variety
			Crop Rotation	Agroforestry

CSA Prioritization Framework

Filters for selecting CSA investment portfolios



*Analysis of context variables

Long list of CSA practices

*Ex-ante assessment based on CSA indicators

*Stakeholder workshop

Ranked short list of priorities

*Economic analysis – assess costs and benefits

Ranked short list based on CBA

*Integrated analysis of opportunities & constraints

* Stakeholder workshop

CSA investment portfolios

CIAT/CCAFS team: Ana Maria Loboguerrero, Andy Jarvis, Miguel Lizarazo, Andreea Nowak, Nadine Andrieu, Fanny Howland, Osana Bonilla, Deissy Martinez

CSA-Plan

P4S

Engagement

Situation Analysis
Risks and Enabling Conditions

Vulnerability & Impacts + Readiness

Stocktaking for CSA Action

Targeting & Prioritizing
Practices, Programs and Policies

Trade-offs & Value for Money

CSA Investment Portfolios

Programing Design
Guidelines & Implementation

Knowledge into Action

Taking CSA to Scale

Monitoring and Evaluation
Across Scales and Systems

Evidence Based Results Framework

Learning from Experience

Capacity development

PARTNERSHIPS FOR SCALING

CLIMATE SMART AGRICULTURE (P4S - CSA)

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