



# DEMOCRATIZING DATA FOR AGRICULTURAL TRANSFORMATION IN AFRICA

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RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



Food and Agriculture  
Organization of the  
United Nations





Biodiversity conservation

Carbon sequestration

Landscape restoration

Agricultural productivity

Gender Equity

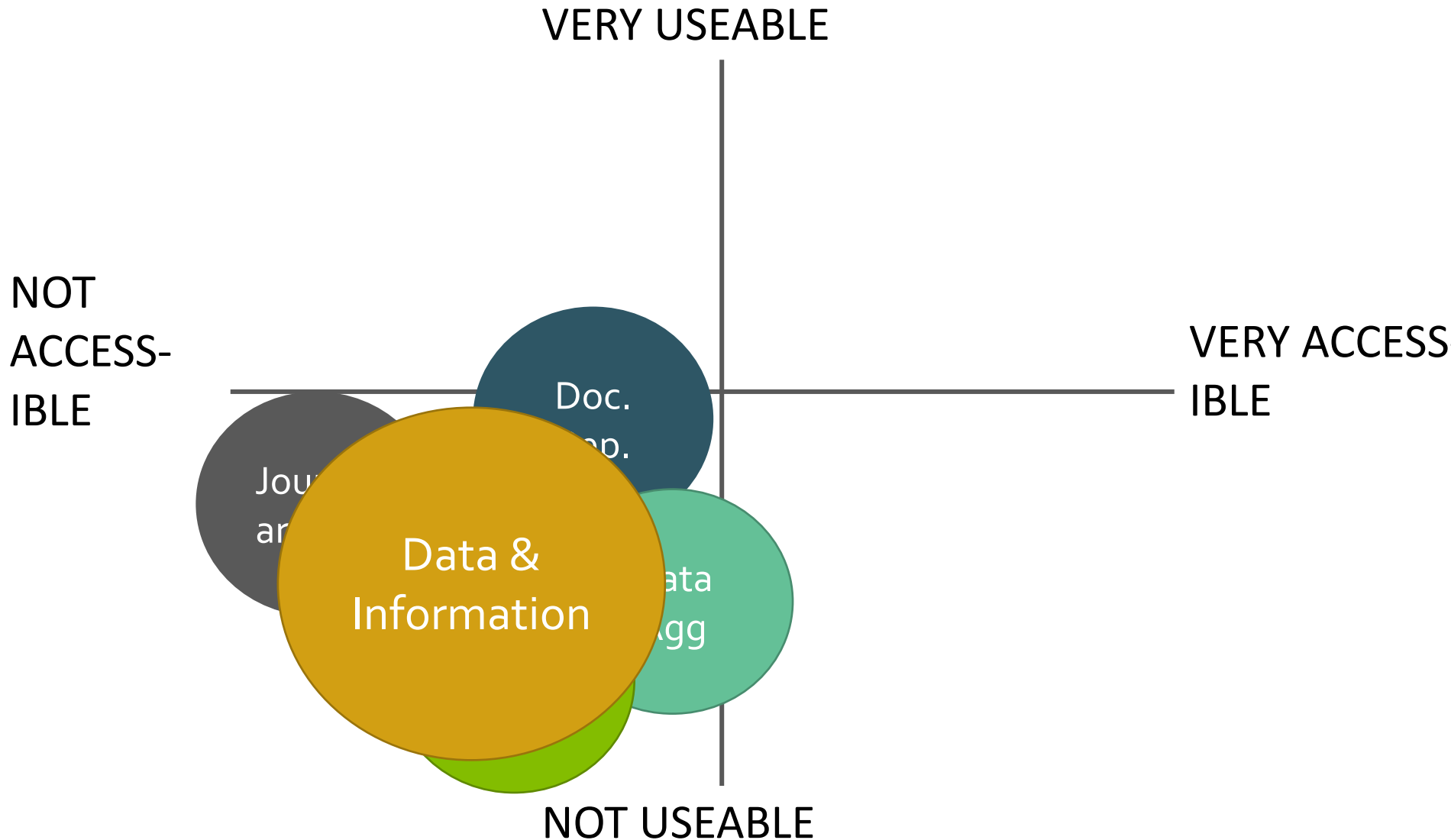
Access to information

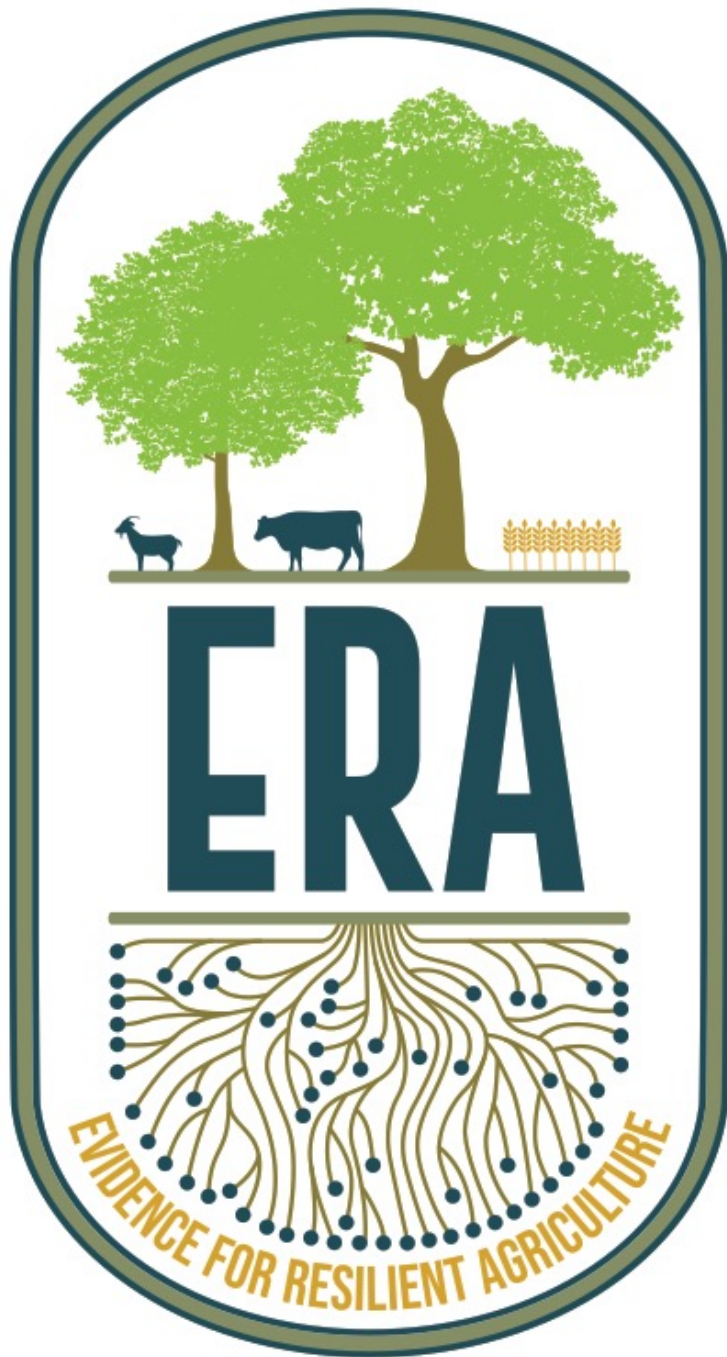
**TO TRANSFORM FOOD SYSTEMS TO BE CLIMATE-FRIENDLY, DECISION-MAKERS NEED INFORMATION ON WHICH OPTIONS WORK WHERE AND FOR**

**WHOM**

Photo Credit: Georgina Smith (CIAT)

# Data, data everywhere - but not a drop to drink





**Systematic review** of the ability of agricultural technologies to deliver on **productivity, resilience and mitigation outcomes**, to allow evidence-based decision making for **diverse users**



# Evidence for Resilient Agriculture (ERA)

Meta-analysis of peer-reviewed literature for productivity, resilience, and mitigation outcomes due to changes in farm level practices

Key word search

144,567 papers

Abstract/title review

16,254 papers

Full text review

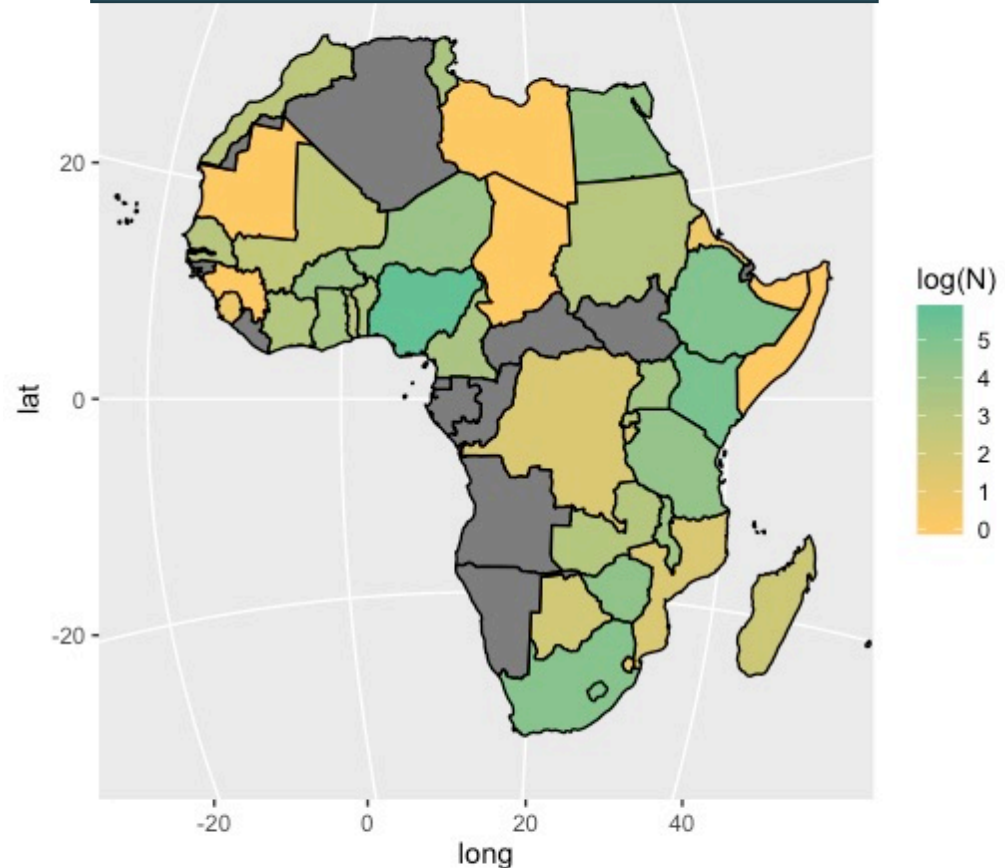
6,100 papers

Data extraction

~75,000 data points

ERA Database

Data availability by country





Meta-Analysis:

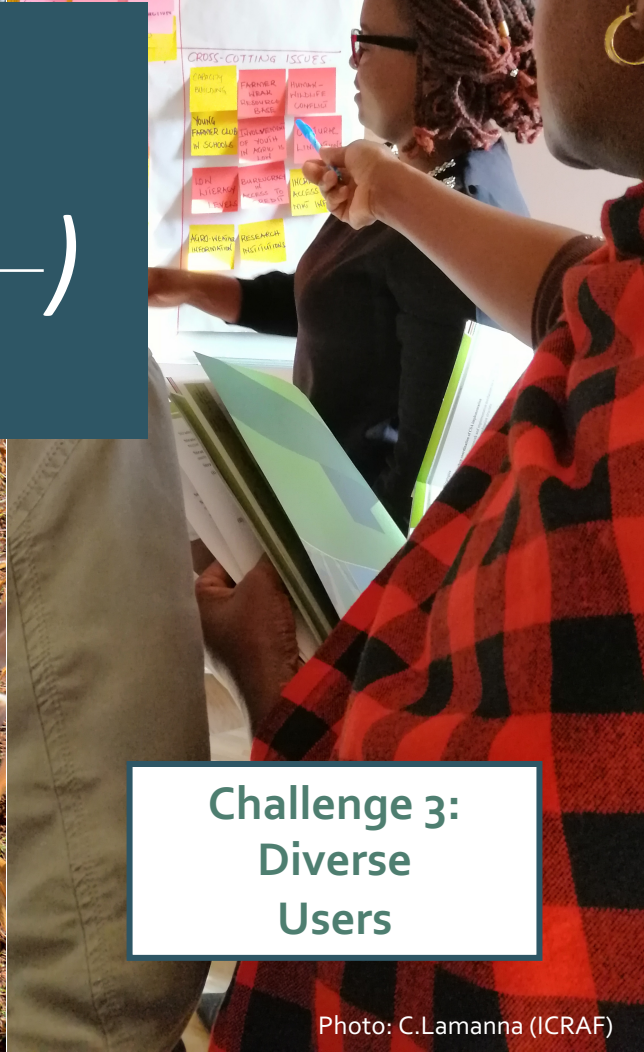
$$RR = \ln\left(\frac{Y_{csa}}{Y_{control}}\right)$$

**Challenge 1:  
Diverse  
Technologies**



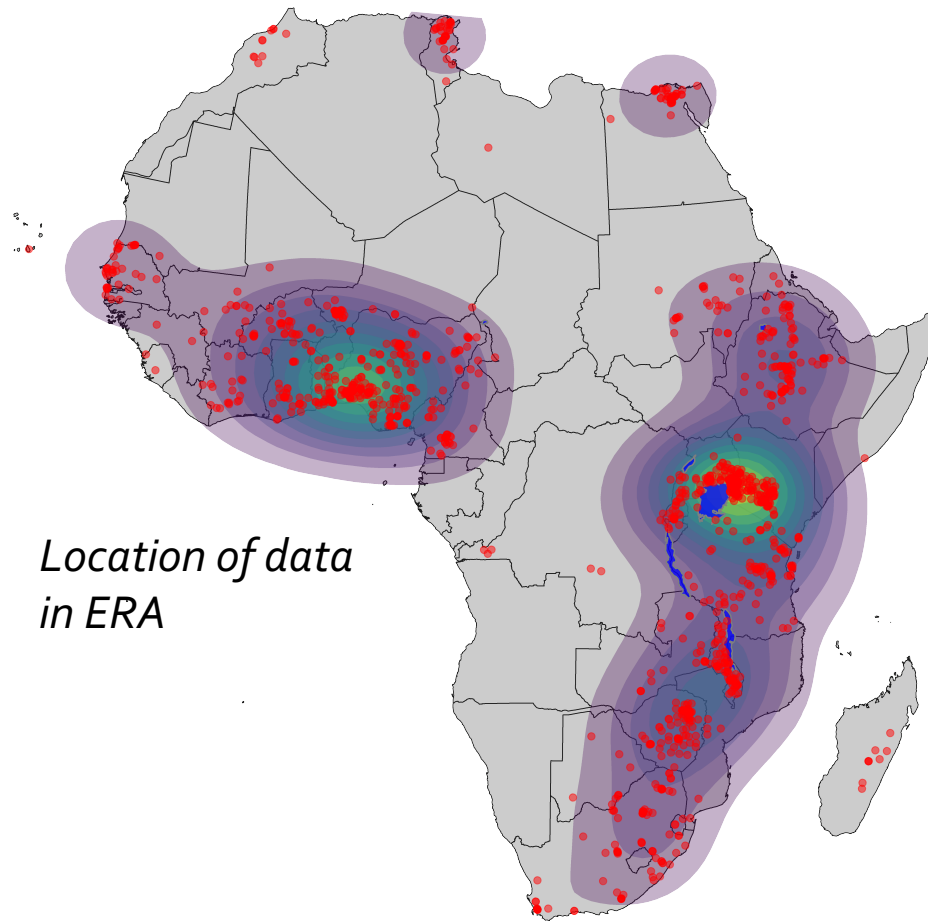
**Challenge 2:  
Diverse  
Outcomes**

**Challenge 3:  
Diverse  
Users**

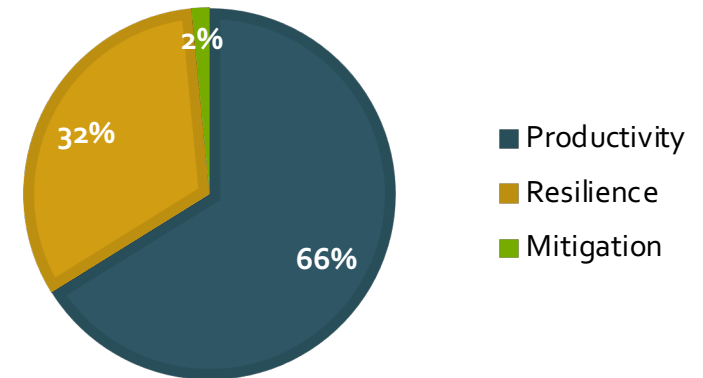


# What's in ERA?

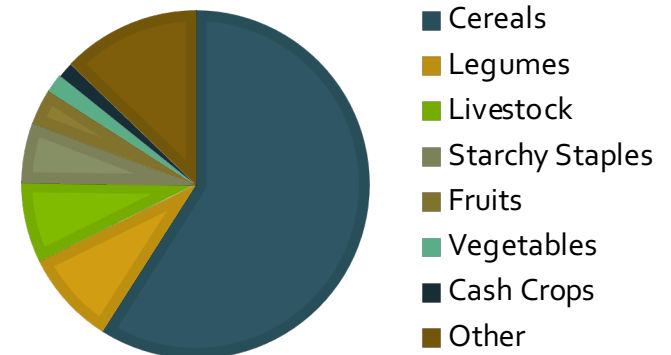
The impact of adaptation options is **context specific**. But data is not evenly distributed



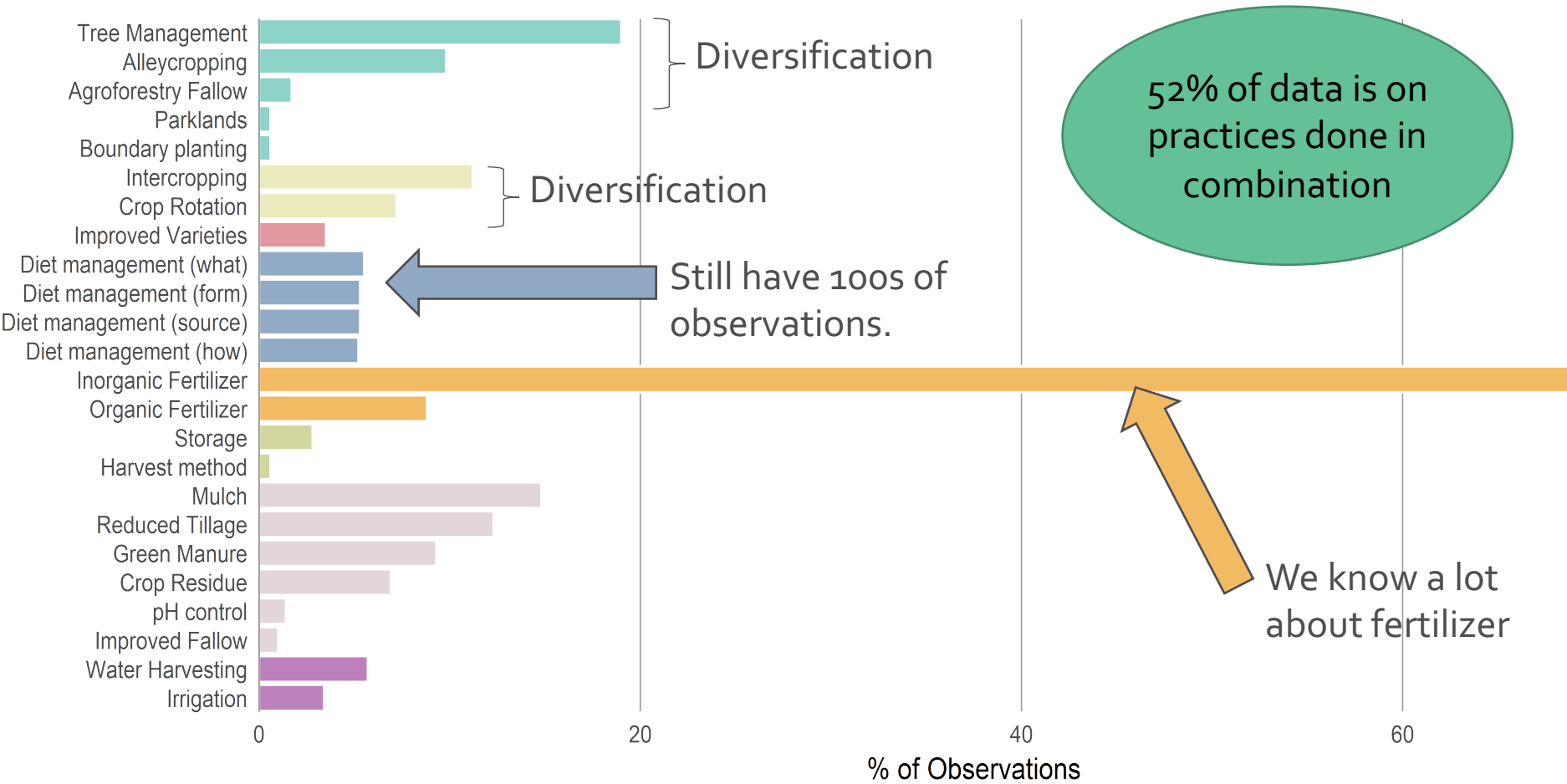
## OUTCOME



## COMMODITY



# What's in ERA?

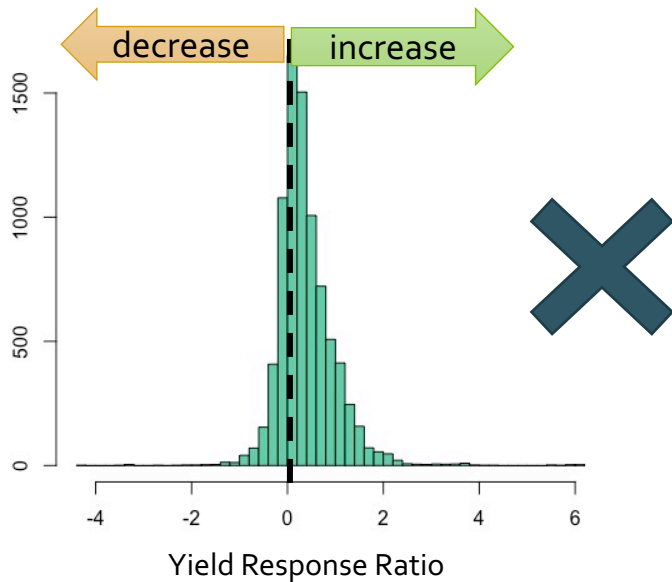




# Putting ERA to work

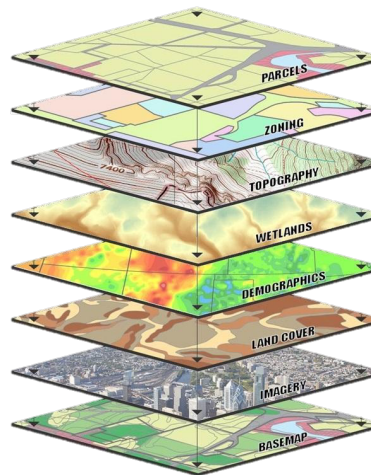
## 1. Predicting option performance in novel contexts:

### Agricultural Data



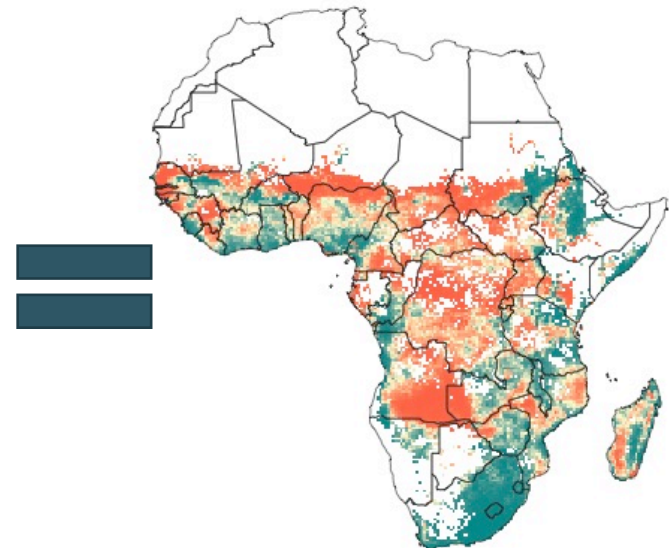
Data from ERA

### Spatial Data

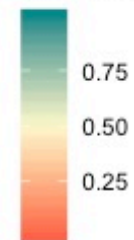


Climate  
Soils  
Agroecology  
Socioeconomics

### Potential Suitability

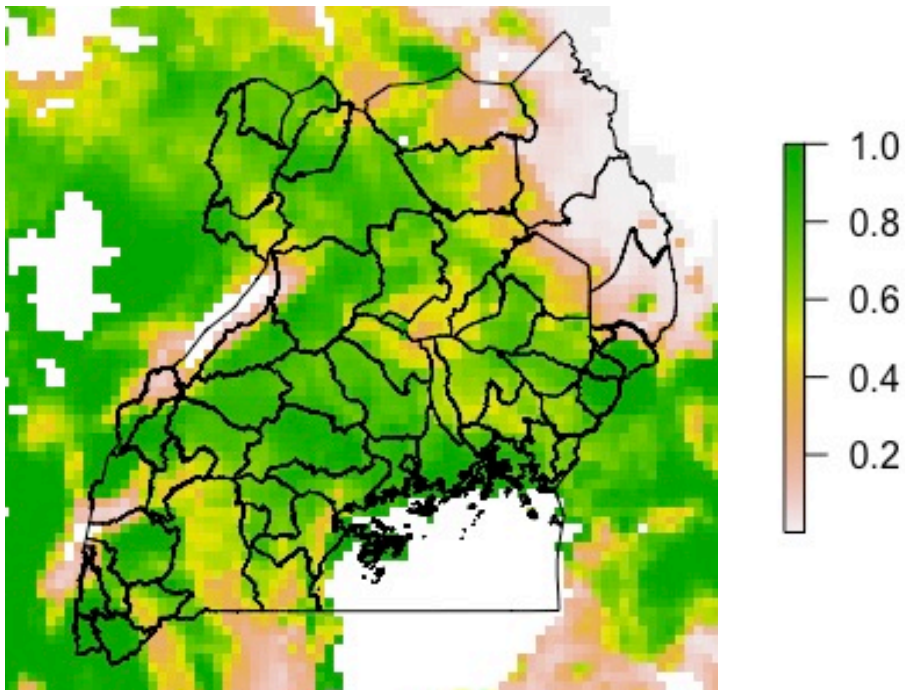


Chance Suitable



*Northern Uganda is a "data desert" due to decades of conflict, but now hosts more than 1 million refugees who need climate-proofed agriculture*

Suitability of Crop Residue Retention



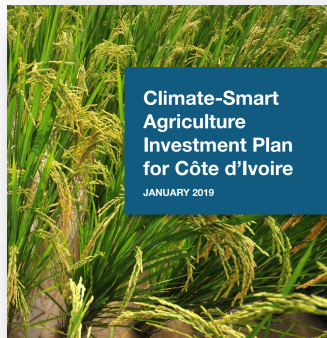
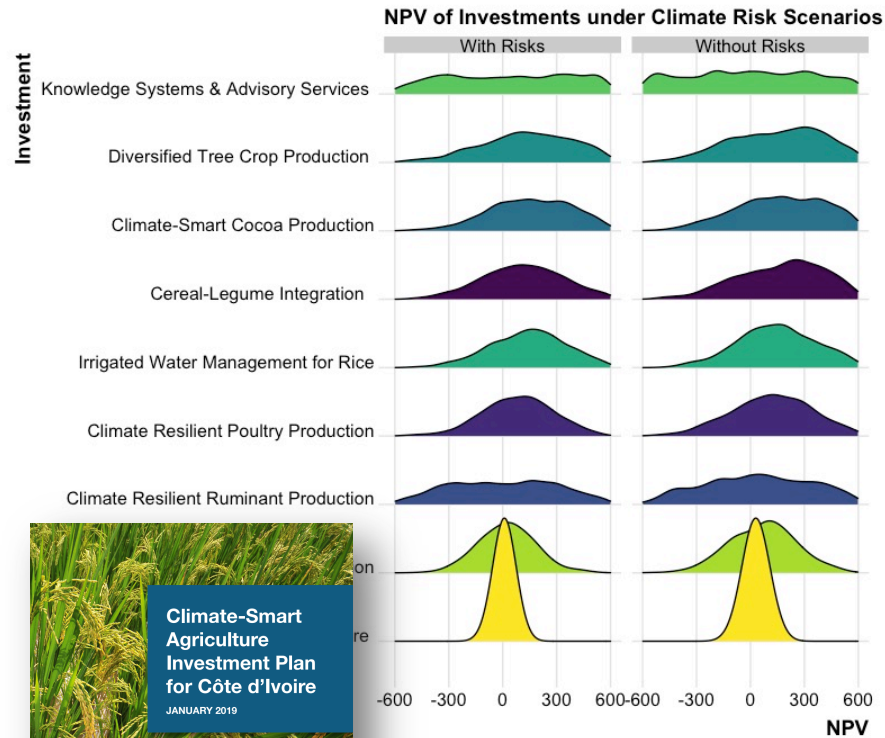
PREDICTING  
FOR NOVEL  
CONTEXTS



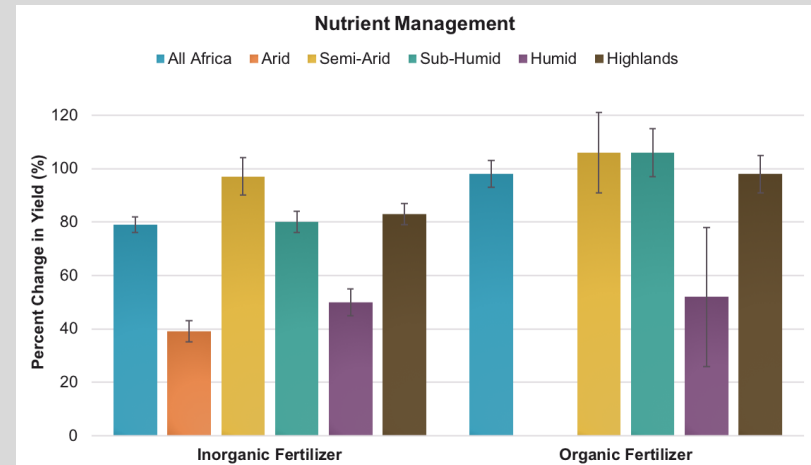
Photo: C. Watson (ICRAF)

# Putting ERA to work

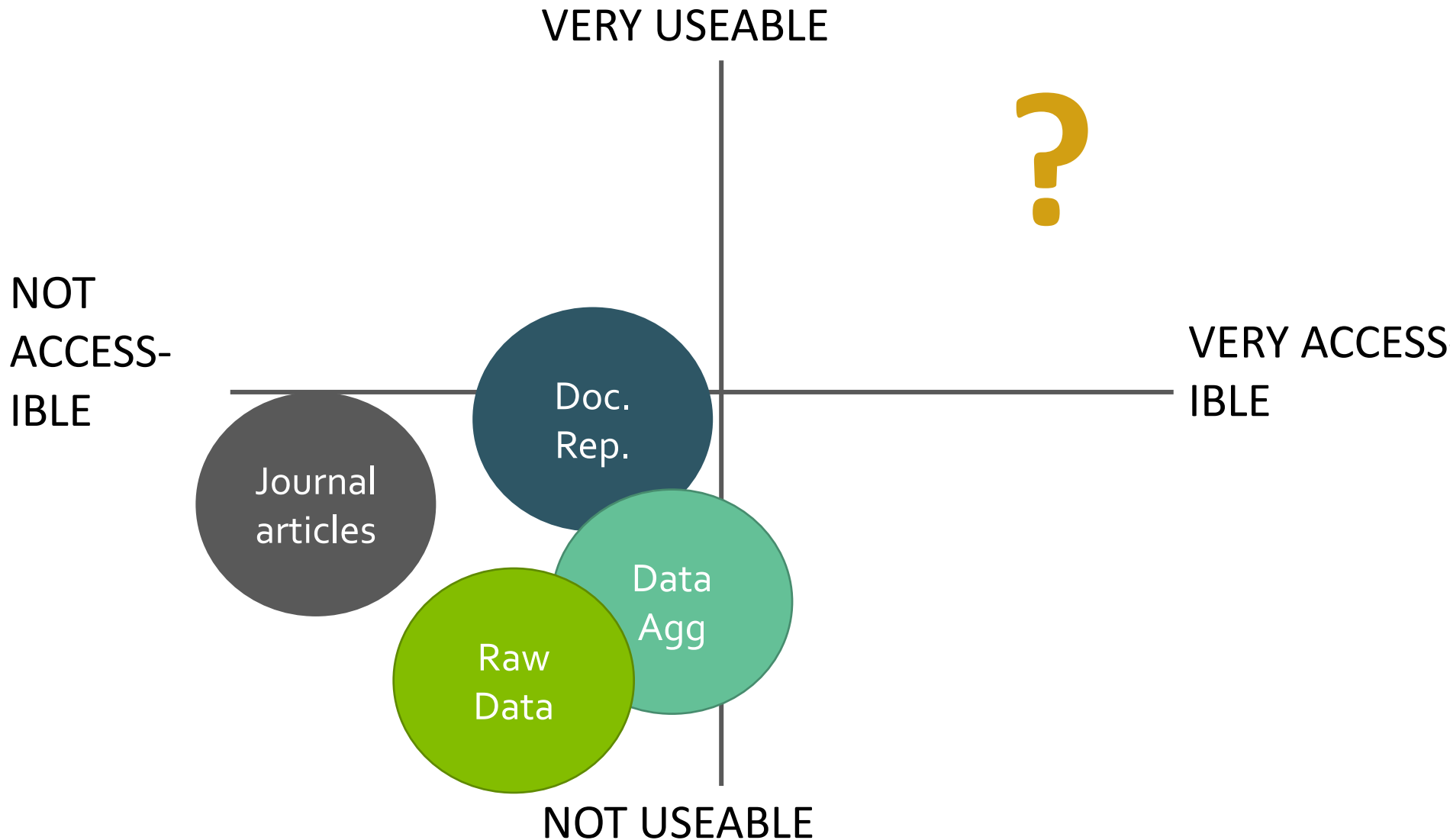
## 2. Informing Large Development Investments



## 3. Developing Sub-national climate change adaptation plans



# Are we there yet?



# Are we there yet?

<https://era.ccafs.cgiar.org>

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# THANK YOU!



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<https://era.ccafs.cgiar.org>

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