

**Ready. Set.  
LEADS!**



## **AgriConnect Learning Series**

*Evidence for Better Jobs in Farming and Agribusiness*

### **Episode #1: Upskilling Smallholder Farmers**

# Agenda

**Upskilling farmers in the wider institutional context**



**Florence Kondylis**  
Research Manager  
DECPL



**Christian Bodewig**  
Director, Education  
and Skills

**Curate evidence that supports program design**



**Benedetta Lerva**  
Economist  
DECDI



**Jeremy Magruder**  
Professor, Agricultural &  
Resource Economics  
UC Berkeley

**Reflections on clients' evidence needs**



**Ashwini Sebastian**  
Senior Agricultural  
Economist, SAWA1

# Mission AgriConnect:

Building the right ecosystem to transform farming and the agrifood sector for millions

## 1. Strengthening Foundations

- Rural infrastructure
- Natural capital
- Digital ag solutions
- Research extension and skills

### Focusing on value chains:

- Business development for cooperatives
- Better inputs (seeds, fertilizer, machinery)

## 2. Revamping Policies

- Policy alignment (agriculture & food policies, standards, trade facilitation, land tenure)
- Repurposing of agricultural subsidies to reduce environmental impact, foster healthier diets, and create jobs

## 3. Finance Solutions:

- Derisking instruments (digital finance, guarantees, ag insurance)
- Climate finance (outcome bonds, paving the way for carbon finance)
- Partnerships with private sponsors and philanthropies

Ensuring inclusion as guiding principle for all investments

# Six scalable solutions to help farmers move up the value chain and fosters thriving agribusinesses

 <b>Aggregation Models</b>	 <b>AgTech Solutions</b>	 <b>Physical Infrastructure</b>	 <b>Skills, Extension &amp; Research</b>	 <b>Building the Financial Ecosystem for Farmers</b>	 <b>Policy Reforms</b>
<ul style="list-style-type: none"> <li>• Build capacity for cooperatives (POs)</li> <li>• Farmer-led aggregation models (“productive alliances”)</li> <li>• Anchor firm models to link smallholders to value chains</li> </ul>	<ul style="list-style-type: none"> <li>• Bundled <u>AgTech</u> solutions</li> <li>• Investments in Digital Public Infrastructure</li> <li>• Seed and VC financing</li> <li>• Digital footprints that unlock farmers’ access to finance, markets and knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated spatial approaches</li> <li>• PPP models to scale irrigation infrastructure, and farmer-led irrigation</li> <li>• Energy solutions for agriculture (irrigation; cold chain infrastructure), incl. with ESMAP, M300</li> </ul>	<ul style="list-style-type: none"> <li>• Investing in critical agribusiness sector skills gap</li> <li>• Standardizing farmers’ skills</li> <li>• Expanding the adoption of innovations through public-private Agriculture Research Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Revamped engagement with public agriculture banks</li> <li>• Scaling agricultural insurance</li> <li>• Mobilizing financial institutions to lend to agriculture/agribusiness</li> <li>• Leveraging debt swaps, carbon finance for agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Compacts and policy lending (<u>PfRs</u>, DPOs)</li> <li>• Technical assistance to support policy work and Agriculture Public Expenditure Reviews</li> <li>• Accelerating reforms (Impact Programs /knowledge academies)</li> </ul>
<b>Ensuring social inclusion</b>					

# The Planet Lab Toolkit

Toolkit: Curated operations-oriented evidence to support the design of impactful projects.

Masterclass and Self-paced eLearning



Access here:

<https://bit.ly/4b2HFvW>



# Planet Lab Toolkit: curated evidence to inform program design

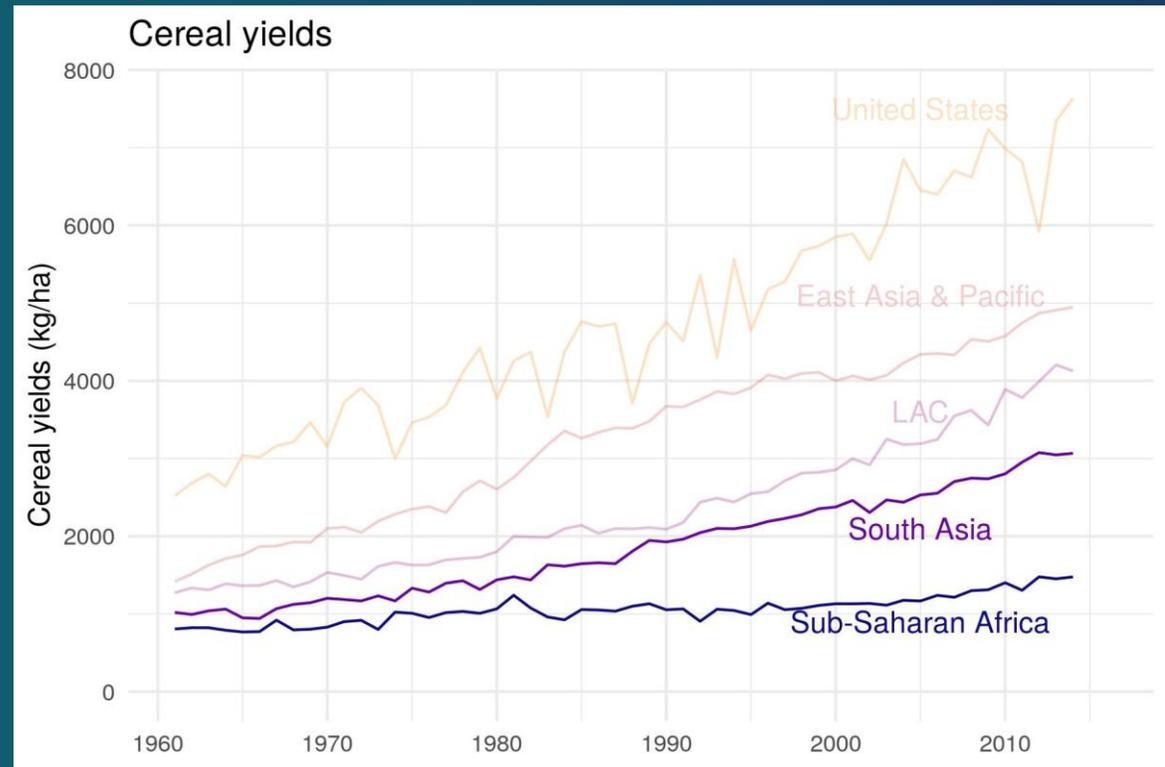
*Benedetta Lerva*  
*Economist, DECDI*



# Agricultural productivity growth in sub-Saharan Africa has been stagnant for decades

## With stark economic consequences and potential:

- Agriculture employs 60% of the SSA labor force ([World Bank, 2024](#))
- South Asia's agricultural productivity growth has lifted over 250 million people from poverty ([Armentano et al., 2025](#))



# Strengthening foundations are especially critical in SSA

All of the yield gap between SSA and South Asia can be explained by:

**low adoption**  
of

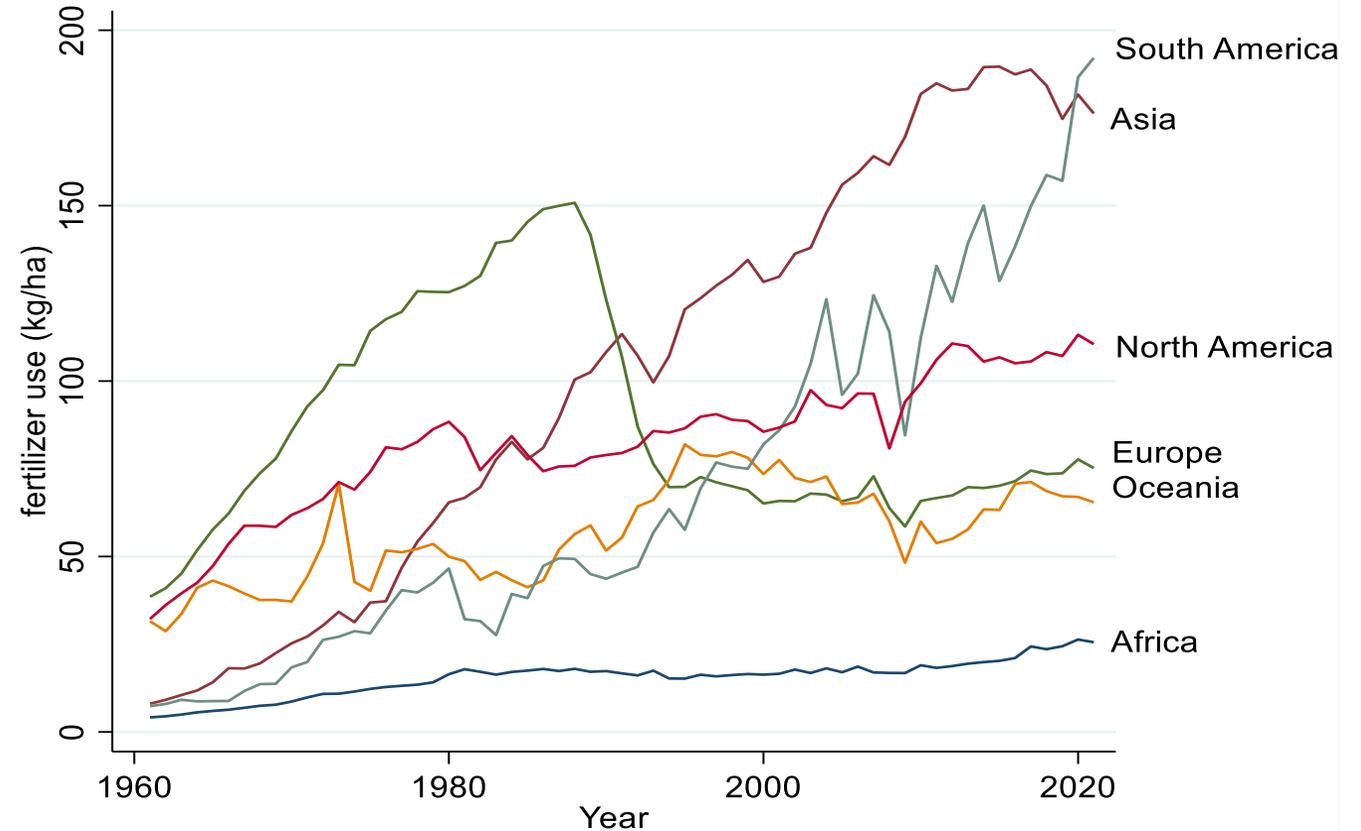
1 **improved seeds**

2 **fertilizer**

3 **irrigation**

&

4 **low returns** to improved seeds



# Research extension and skills



Standardizing  
farmers' skills  
through **effective**  
**extension**  
systems

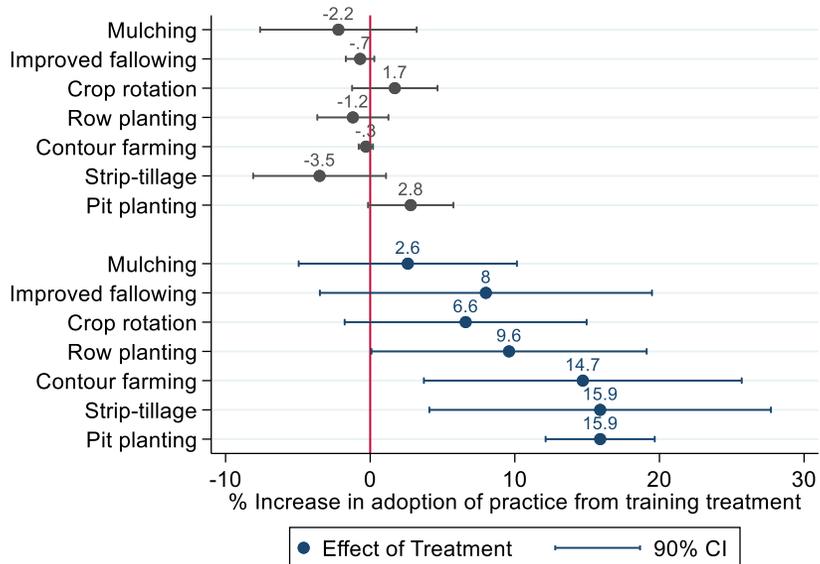
# Making Agricultural Extension Systems Work for Farmers



Adoption gaps cannot be closed without effective agricultural extension to provide farmers with skills and support

Other farmers

Directly trained farmers



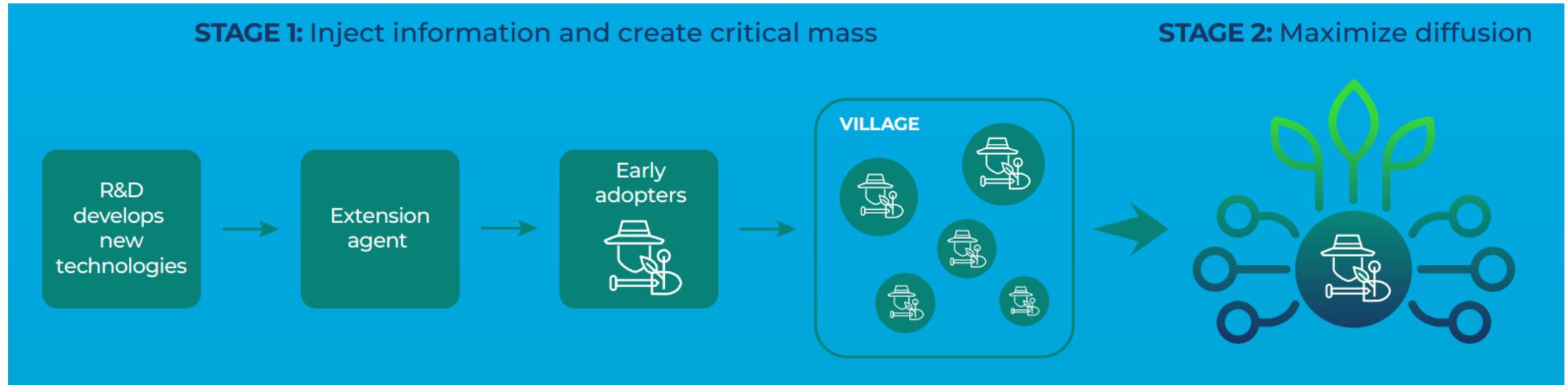
Note: Data from Impact Evaluation of Market-Led Smallholder Development Project as reported in Kondylis, Mueller, & Zhu, 2017

**Direct training** increases adoption of new **techniques** but does not necessarily spread to others.

With overstretched extension systems how to reach **more** farmers?

# The two-stage learning framework:

Design extension systems around two phases of knowledge transfer



## Direct intervention

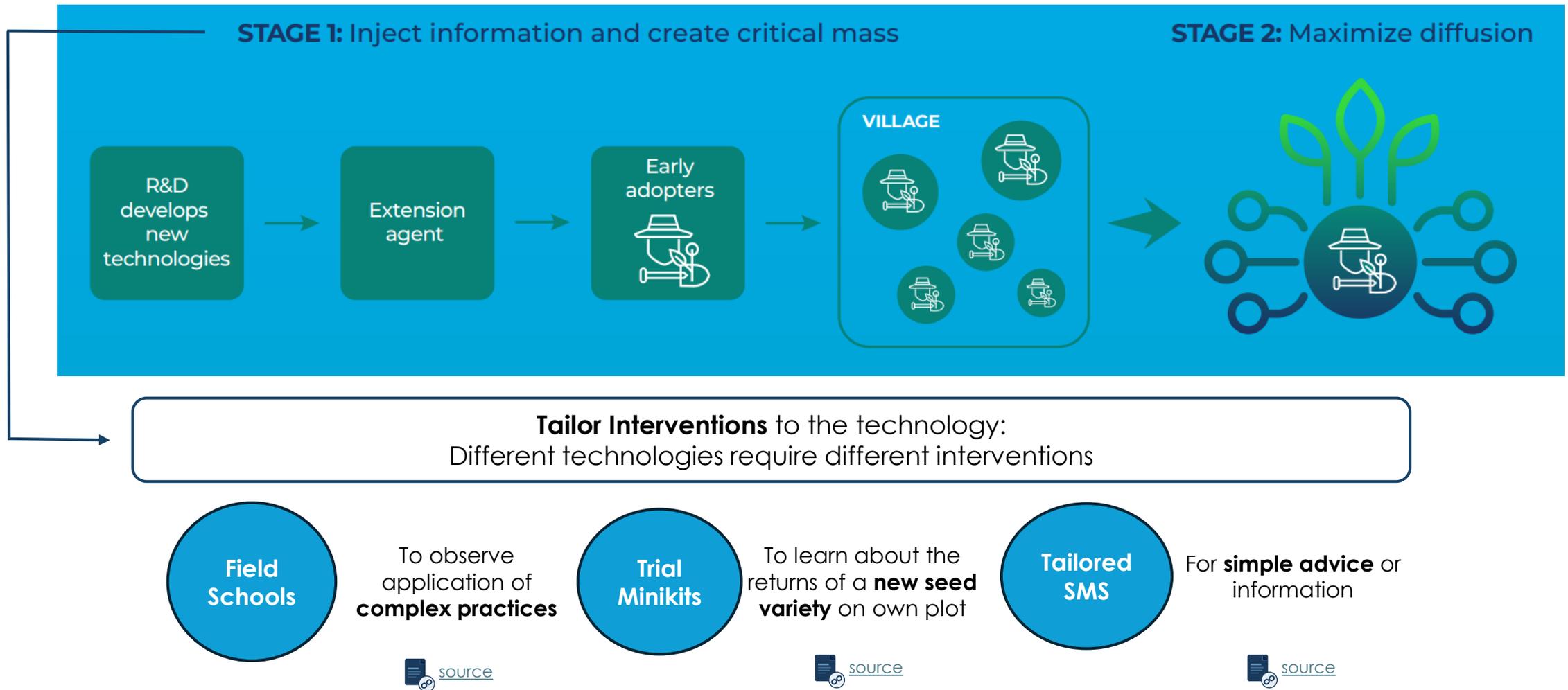
How do farmers learn and decide to adopt?

## Widespread adoption

How does information spread?

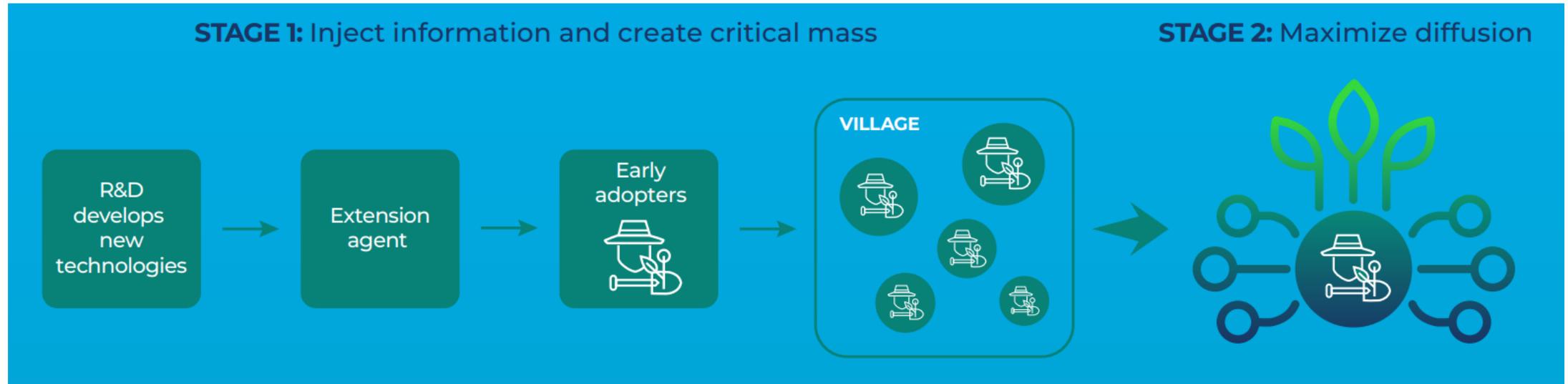
# The two-stage learning framework:

Design extension systems around two phases of knowledge transfer



# The two-stage learning framework:

Design extension systems around two phases of knowledge transfer



Train Women Farmers



Use Financial Incentives

Promote Firsthand Experience

Target Connected Farmers

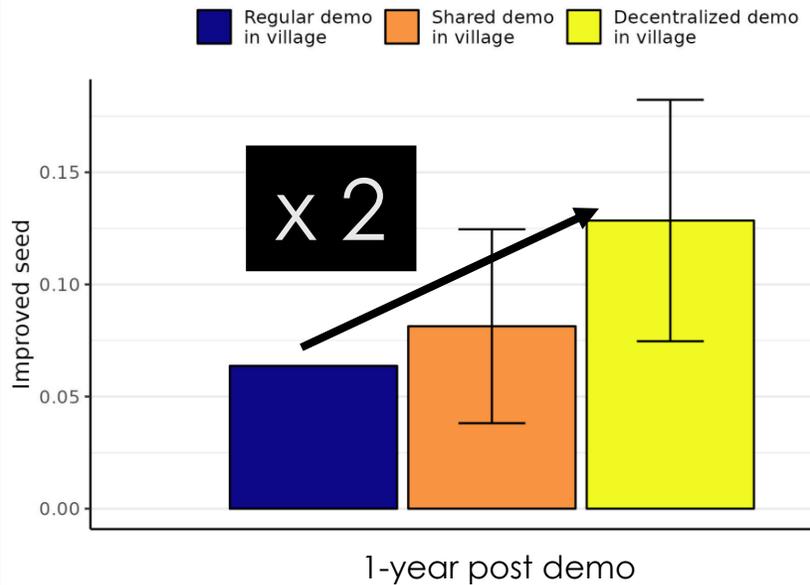
Foster **spread** of knowledge in social networks  
+  
**Digitize** for scale  
+  
Address **complementary constraints** to adoption  
to trigger widespread adoption

# Getting it right can boost productivity and resilience



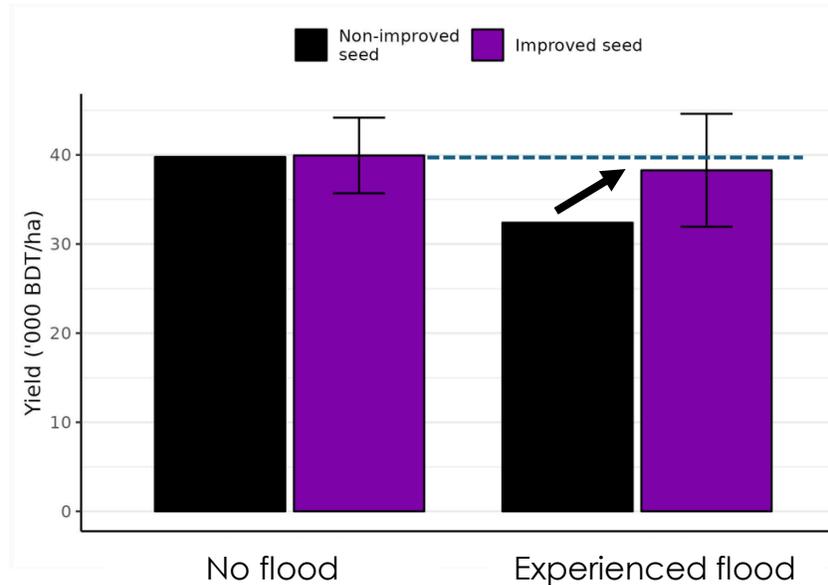
## Findings

Adoption of improved seed by extension model



**Tailoring** method to the technology **doubles adoption** of saline resilient seeds in Bangladesh

Yield by flood experience and adoption



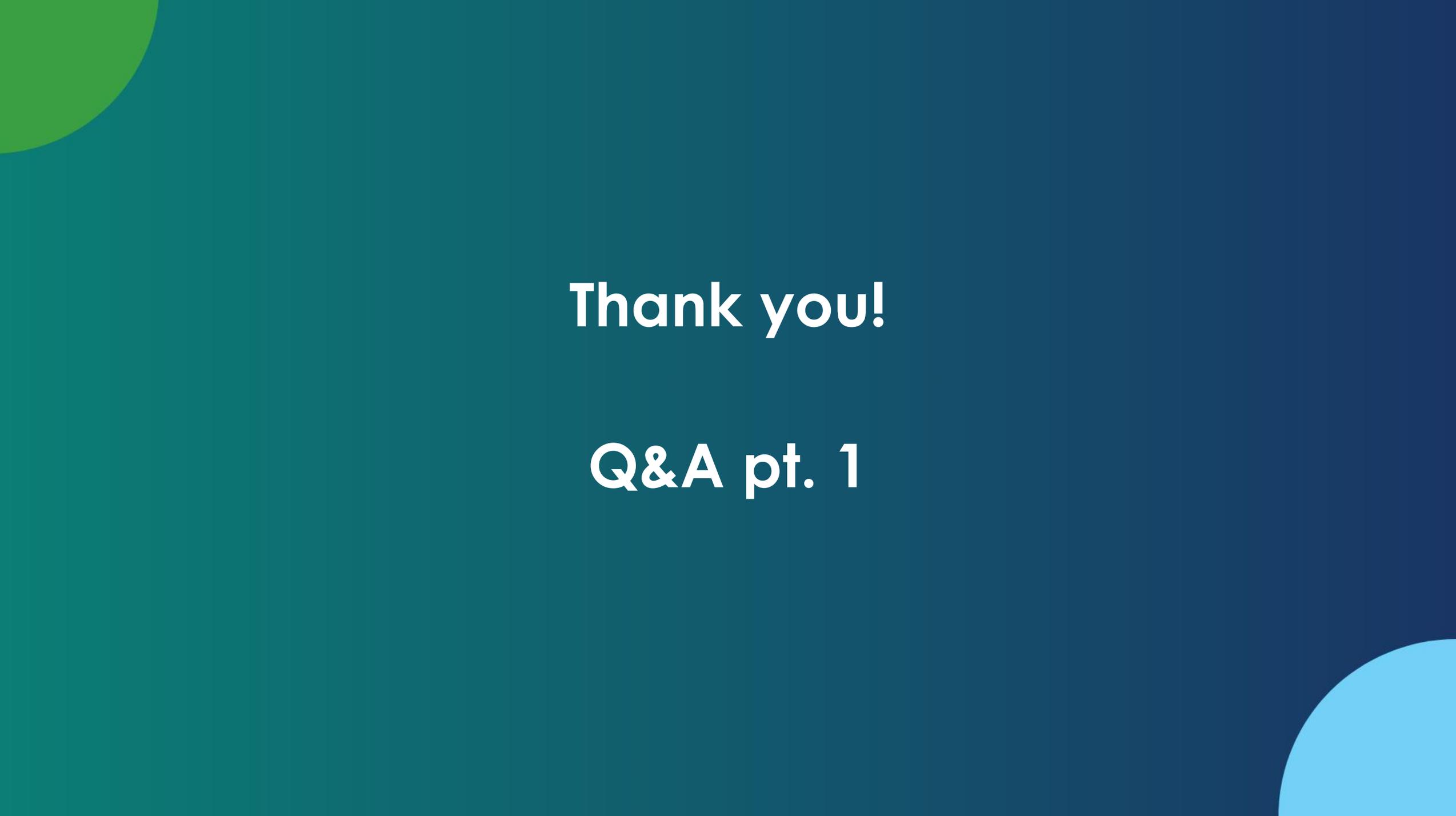
Adoption of the seeds **mitigates** any negative yield impacts of floods



# Extension: Needs, Limits, and a Direction for Investments

*Jeremy Magruder*

*Professor, Agricultural & Resource Economics, UC Berkeley*

The background is a solid teal color. In the top-left corner, there is a partial green circle. In the bottom-right corner, there is a partial light blue circle.

**Thank you!**

**Q&A pt. 1**



# Reflections from the field: client evidence needs

*Ashwini Sebastian*  
*Senior Agricultural Economist*

**Q&A: we want to hear from you**

# Stay tuned for more!

- **April:** Repurposing subsidies
- **May:** Land reforms and farmer registries
- **June:** Making irrigation infrastructure deliver

## And more to come:

AgTech solutions, Resilience, Value chain interventions, Access to finance and cooperatives, Scaling Insurance, Standards and traceability

# Thank you!

Learn more

<https://bit.ly/4b2HFvW>



To access the Planet Lab Toolkit and watch the Masterclass. Self-paced course launch March 19<sup>th</sup>

# Extension: Needs, Limits, and a Direction for investments

Jeremy Magruder

March 5, 2026

# Extension Implementation (&Research!) is often technological

- Farmer Field Schools
- Demonstration Plots
- Lead Farmer models
- Digital Extension
- Worker Incentives

# For today: Focus on 2.5 examples

- Farmer Field Schools
- Demonstration Plots
- Lead Farmer models
- Digital Extension
- Worker Incentives

- Meta-Analysis of 6 sms-based digital extension projects in Kenya and Rwanda
- Focus on Lime use. - 8-12% of farmers using at baseline
- 3 partners - Kenya Government, Research NGO with agrodealer partners and clients;, 1 Acre Fund
- respondents sent (often many) sms messages about lime use for soil remediation, soil quality data
- “warm” market, “light” push

# SMS extension (modestly) boosts take-up in a warm market

Panel A. Followed lime recommendations

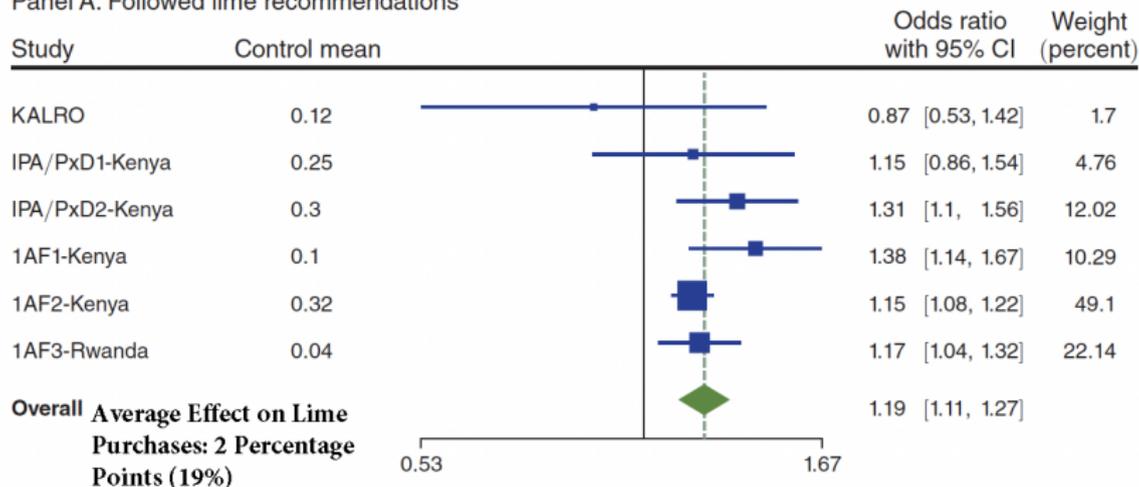


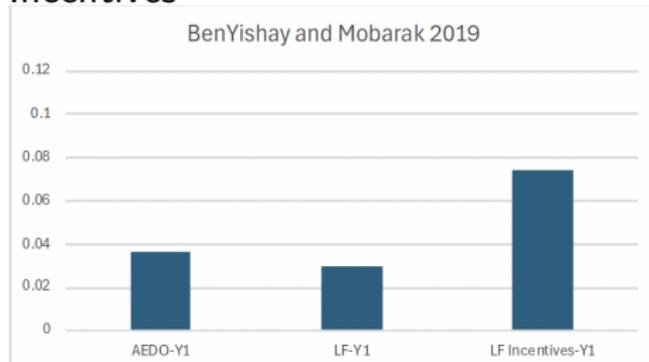
FIGURE 2. EFFECTS ON LIME PURCHASES (ADMINISTRATIVE DATA)

# Lead Farmers in a cold market: Pit Planting/SLM

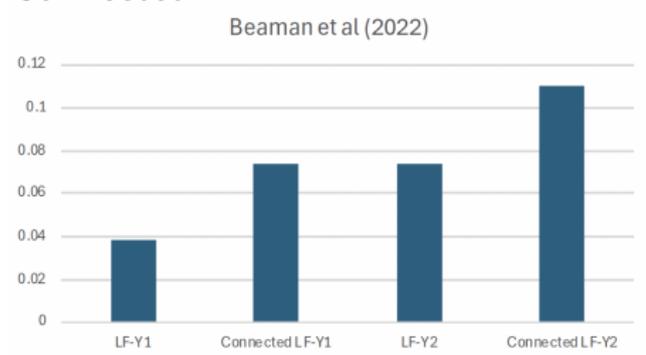
- 1 Randomly selected Contact Farmers trained in Mozambique (Kondylis et al 2017) - Does not generate community adoption
- 2 An Extension Agent, 1 Lead Farmer selected by extension agent (BenYishay and Mobarak 2019)
  - Some provided incentives based on community-level adoption
  - Also tried other methods of LF selection
- 3 2 Contact farmers selected by extension agents or based on position in village networks (Beaman et al 2022)
- 4 “cold” market, “heavy” push

# Improving LF models in a cold market

## Incentives



## Connected LF



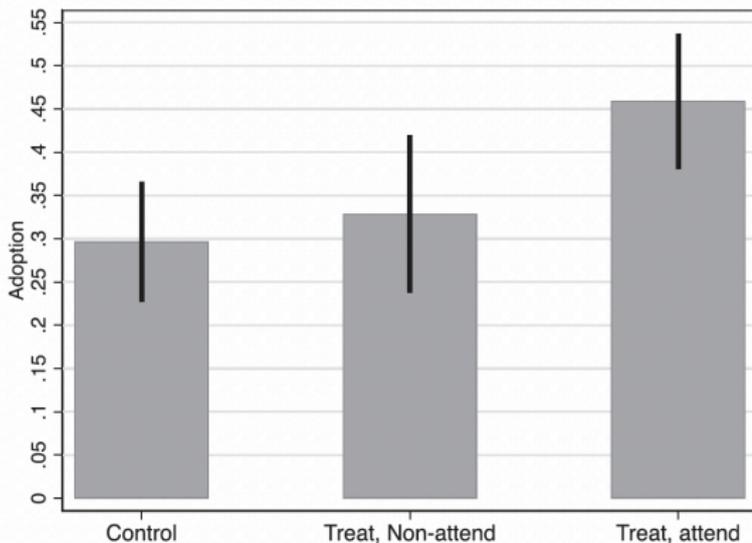
## 2 very different contexts/interventions, but similar results

- Improving extension methods improves adoption off of a very low baseline
  - Suggests the need for a stronger push than “just” business as usual for effective extension
  - in many studies, little evidence of spread of new technologies at all using business-as-usual extension
- Effects are large in relative terms but small in absolute terms
- similar results also for efficacy of demo plots and other methods in most markets - large relative but small absolute effects from improvements to demo plots (Kondylis et al 2025)

# larger effects in a “warm” market with a “heavy” push

- Emerick and Dar (2024) organize farmer field days around village-demo plots
- warm market - door to door seed sales, IRRI seed in Orissa

FIGURE 3.—ADOPTION RATES SEPARATELY FOR FIELD DAY ATTENDEES AND NONATTENDEES



# Towards an extension agenda

- It seems unlikely that improvements in extension *methods* will generate large changes in productivity by themselves
- But low-push business-as-usual extension seems *very* ineffective - many different pushes seem to inspire better take-up
  - Not all pushes effective: role for tailoring push to technology
- How do we craft technology policy when there may be only a few “reachable” farmers?
  - Search out warm markets and use a heavy push
  - Suggests role of extension in complementing other pushes/value chains rather than as a stand-alone goal
  - e.g. bundling extension services with input/output markets and financial services rather than as a stand-alone intervention (e.g. FFS + evoucher)