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Leveraging Private Sector Innovation to Generate Global Evidence on Farmers' Productivity, Profitability, Food Security, and Environmental Sustainability

Framing a Research Agenda for the UM6P-J-PAL Applied Lab for Agriculture (UJALA)

UJALA
UM6P J-PAL Applied Lab for Agriculture

J-PAL
ABDUL LATIF JAMEEL POVERTY ACTION LAB

UM6P
University Mohammed VI Polytechnic

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I. Motivating an agricultural lab to study small-scale farmers' food security, productivity, profitability, and environmental sustainability

Supporting small-scale agriculture remains critical to reducing extreme hunger and poverty in low- and middle-income countries (LMICs). The prevalence of moderate and severe food insecurity remains high, affecting 28.9 percent of the world's population, including over 864 million facing severe food insecurity (FAO et al., 2024). Despite diverse agricultural systems, many regions remain net food importers and continue to face the aftereffects of the pandemic (FAO, 2023). And this is particularly true for Africa, Oceania and Small-Developing Island States (UNCTAD, 2020), with Africa importing over 60 percent of food—more than double the global average of 29.6 percent (FAO, 2023).

While the immediate shocks of Covid-19 have subsided, recovery has been uneven. Persistent supply chain delays, labor shortages, and input constraints continue to strain agri-food systems, underscoring the need for resilience-building, diversified supply chains, and adaptive policy responses to strengthen food security (Monsuru et al., 2024). Climate change is another factor intensifying food insecurity as more frequent and intense weather shocks affect production. Climate change is expected to reduce yields of staple crops by up to 30 percent by mid-century due to lower productivity and higher likelihood of crop failure (Jain et al., 2015).

Given this complex environment, improving the agricultural productivity of small-scale farmers, who form the backbone of agriculture in many LMICs, is a critical objective to improve global food security. Evidence suggests that a primary way to increase productivity is through the adoption of agricultural technologies, of which fertilizer, more resilient and/or higher productivity seeds, and irrigation equipment, are prime examples (J-PAL, 2019). However, technology adoption in LMICs remains disproportionately low. The world average fertilizer application rate is about 134.2 kilograms per hectare of arable land (FAO, 2022). In sharp contrast, this rate in Sub-Saharan Africa is only 18.2 kilograms per hectare (FAO, 2022), while in low-income countries globally it is just 6.4 kilograms per hectare in 2022 (FAO, 2022).

A robust evidence base, some of which was funded through the Agricultural Technology Adoption Initiative (ATAI), has demonstrated that alleviating the constraints that farmers face in adopting new technologies, like access to credit and savings, information, and inputs, among others, can help improve farmer productivity (Jack, 2013; Suri and Udry, 2024). However, evidence also suggests that technology adoption is not the only factor hindering productivity,

nor should productivity be the only goal. Supporting farmers' profitability and transition out of subsistence farming is another key step to improve farmers' welfare. Hence, the literature funded to date has also focused on connecting farmers to input and output markets, developing contracts, supporting value-added activities, and the diversification of production (J-PAL, 2019).

Despite growing evidence on the conditions for agricultural technology adoption and market access, there are gaps in the evidence, particularly around strategies to improve farmer's productivity, profitability, food security, and environmental sustainability. There is a unique opportunity for the private sector to support evidence-informed business development that aims to enhance the agricultural operations' efficiency and productivity, optimize input utilization, and improve the economic returns from the farming activities, while contributing in parallel to broader objectives of food security and sustainable agricultural development for small-scale farmers. For example, due to the private sector' operational scale and incentives to quickly respond to market changes, the sector is uniquely positioned to support farmers to tailor and distribute high-quality inputs. In addition, complex challenges related to providing access to training for farmers on best agricultural practices for sustainable fertilization, disease and/or pest management, facilitating market linkages, and integrating domestic supply chains create an opportunity for the private sector to collaborate with researchers to design evidence-informed programming. At the same time, collaboration with public-sector institutions and other implementing partners can further expand opportunities to generate rigorous evidence aligned with shared agricultural development objectives.

Introduction to the UM6P - J-PAL Applied Lab for Agriculture (UJALA)

The UM6P-J-PAL Applied Lab for Agriculture (UJALA) will generate rigorous global evidence on improving farmers' food security, productivity, profitability, and environmental sustainability. As a private-sector–anchored applied lab, UJALA operates in close partnership with OCP Nutricrops, whose farmer-centric programs provide an important operational context for evidence generation. OCP Nutricrops also engages with governments and development partners on fertilizer policy, subsidy reform, and agricultural extension, providing a critical opportunity to influence policy more broadly. Studies that generate findings relevant to these policy discussions—whether with OCP Nutricrops or another implementer—like on the environmental benefits of nutrient rebalancing or the public returns to investment in farmer advisory services, directly support UJALA's objectives.

UJALA will primarily fund randomized evaluations through a range of grant types detailed below. Randomized evaluations are a powerful tool for testing key components of a program's theory of change and identifying the mechanisms that drive the success of specific interventions.

There are two categories of evaluations: **Embedded evaluations** directly with OCP farmer-centric initiatives and **researcher-led evaluations** that align with the UJALA research agenda outlined below, operate in countries where OCP Nutricrops is active, but are open to implementers beyond OCP farmer-centric initiatives.

UJALA's research priorities are aligned with OCP Nutricrops' strategic learning objectives while also reflecting broader academic and policy debates. Within each priority area, specific interests of OCP Nutricrops are highlighted.

II. Framing a research agenda for UJALA

In this section, we outline UJALA's five key priority areas as well as open questions for research.

1. Subsidy schemes to improve food security

Given the low adoption of agricultural technologies in many LMICs compared to higher-income regions, various policies have been introduced worldwide to facilitate uptake. One such policy is input subsidy programs (ISPs), which provide technologies (mainly fertilizer and improved seeds) at below-market prices. Many countries have some variation of agricultural subsidies in place, making up a large portion of each government's public spending (for instance, in six sub-Saharan African countries, the share is up to 1.5 percent of each country's total GDP on average) (Baptista & al., 2022). Such subsidies are meant to support farmers' productivity, increase yields, and, ultimately, reduce food insecurity.

However, there is little rigorous evidence that has shown the link between agricultural subsidies, productivity, and improved food security. For example, some countries in sub-Saharan Africa that have implemented input subsidy programs have experienced higher growth in aggregate yields (Carter et al., 2021). Yet, other studies point to important limitations, showing that increases in yields do not always translate into higher profits or sustained improvements in farmer welfare. For instance, a randomized evaluation in Haiti tested an input subsidy program for rice seeds, fertilizer, pesticides, and specific labor tasks (Gignoux et al., 2022). The program led to lower input use and decreased yield in the year subsidies were received, and this downsloping effect persisted in the following year. Farmers used the subsidy to pay off their loans and take fewer new ones, instead of increasing their input use.

In Mexico, a randomized evaluation tested an input subsidy program that combined plot-specific soil testing, tailored fertilizer recommendations, and in-kind input grants covering about half of per-hectare costs (Corral et al., 2022). The program increased yields by up to 17 percent, but the gains in farmer income were modest. A more flexible grant format, however, led to more persistent adoption two years later, suggesting that design features can influence longer-term impacts. In contrast, broader subsidy schemes—those not targeted, temporary, or linked to complementary services— often struggle with leakage and implementation challenges, and have often failed to deliver lasting impacts on productivity or food security (Hemming et al., 2018).

Taken together, these findings highlight that the impacts of ISPs depend not only on whether subsidies are provided, but also on how they are designed and implemented. Key questions remain about whether subsidies should be temporary or permanent, in-kind or cash-based, and whether they can be most effective when complemented by information or market linkages. Addressing these open questions will be critical to understanding how subsidy programs can best support lasting improvements in agricultural productivity and food security.

Some relevant questions include:

- What are the effects of agricultural input subsidies (ISPs) on agricultural productivity?
    - What characteristics of ISPs are most effective in realizing productivity gains?
- What types of subsidy schemes can improve food security?
    - What sort of targeting is effective? Subsidies targeting agricultural productivity? Or, income support, as cash transfers often do? Or, new targeting mechanisms, like targeting the adoption of more nutritious crops?
    - What is the mechanism behind why they work?
- What is the optimal design for subsidy schemes? How do conditional and unconditional schemes compare?
- How do in-kind schemes compare to cash transfers, including in cost effectiveness?
    - Under which conditions and for which technologies is each method more effective?
- How can digital tools be used to leverage agricultural subsidies?
    - How can digital tools be used beyond targeting?
- Who should subsidies be targeted to?
    - What are the effects on non-targeted farmers and other rural and urban households? How can these spillover or general equilibrium effects be captured?
- How long do subsidies need to be in place to have lasting impacts on technology adoption and, ultimately, productivity?
    - How do we determine when a subsidy is ready to be lifted?
    - Does the optimal duration of the subsidy depend on the complexity of the technology and the related learning process?
    - Are there technologies where an upfront subsidy is needed to offset upfront costs, and if so, how do we optimally design those subsidies?

2. Reducing the reliance of low-income households on imported food

LMICs have substantial potential to increase domestic food production, yet remain highly reliant on food imports. Globally, the food import bill reached nearly US$2 trillion in 2022, a steep rise from previous years driven largely by high world food prices (FAO, IFAD, UNICEF, WFP, and WHO, 2023). While high-income countries account for most of this increase, low-income countries are disproportionately affected, as they devote a larger share of limited resources to food imports and struggle to adjust to price shocks (FAO, 2022). For example, despite a 10 percent drop in import volumes, import bills in low-income countries saw little change, signaling mounting difficulty in securing sufficient food (FAO, 2022). This vulnerability is further compounded by structural constraints—such as low agricultural productivity and limited use of fertilizer and other inputs—which leave these countries more dependent on global markets even as their purchasing power declines (FAO, 2022).

Countries are increasingly susceptible to global supply shocks, as demonstrated by disruptions like the Covid-19 pandemic and the Russo-Ukrainian War. For instance, the global Cereal Price Index rose by 17.9 percent in 2022, reflecting sharp price increases in wheat and other staples that exposed import-dependent countries worldwide to heightened food insecurity (de la Hamaide, 2023). Under these global conditions, increasing countries' food security is challenging.

Imports can be necessary and valuable when economies specialize to their advantage or when there is limited available water and land resources to grow resource-intensive staples, particularly in the context of more frequent climate shocks, political instability, and conflict (d'Amour and Anderson, 2020). The availability of food imports also allows countries to diversify risk associated with poor and seasonal harvests. On the other hand, the availability of low-priced imports reduces a farmer's own incentives to cultivate staples, which in turn lowers the natural insurance provided by staple production. When there are no suitable instruments to smooth global price risks, a lack of food security can leave farmers exposed to these substantial price changes.

Research has pointed to various strategies to reduce reliance on food imports. One strategy is to improve small-scale farmers' agricultural productivity to compete effectively against low-cost imports from the international market (Rakotoarisoa et al., 2011; Arment, 2020). Encouraging farmers to adopt productive technologies is a well-researched topic and covered in the next section of the research agenda (de Janvry et al., 2009; de Janvry and Sadoulet, 2020; Bridle et al., 2019). Research also highlights the importance of integrating small-scale farmers into domestic value chains (de Janvry and Sadoulet, 2020). There are a host of open questions about how to

best facilitate market linkages from developing post-harvest storage and value-additional opportunities, to developing rural infrastructure to facilitate regional food trade (see subsection D. Improving access to markets). Promoting inter-regional agricultural trade presents another opportunity (FAO and AUC, 2021). Digital technology may help facilitate these pathways by modernizing payments and allowing small-scale farmers to better participate in value chains (see J-PAL, 2022).

In light of all the factors that contribute to reliance on food imports, there are many areas for further research, through partnerships linking research, implementation, and innovation, on how to best reduce risks associated with reliance on food imports.

Some relevant questions include:

- What factors cause small-scale farmers to depend on food imports?
    - How can small-scale farmers protect themselves against sudden increases in imported food prices exacerbated by factors like political instability and conflict?
    - How do climate shocks and environmental degradation affect small-scale farmers' production and what adaptation strategies can be implemented to build resilience in agricultural systems?
    - Which characteristics make countries and communities most dependent on food imports? Which interventions might work to help them overcome those factors without limiting the realized gains from food trade?
- How can small-scale farmers mitigate some of the risks from reliance on imported foods?
    - When can improved post-harvest storage or better financial inclusion reduce consumption volatility associated with changing food prices? Do post-harvest storage facilities support farmers to increase their production and opportunities to sell their crops? How can they be optimized to do this better?
    - Are farmers under-investing in staple production in communities that are most exposed to food price risk? Which instruments and incentives would encourage additional staple production in these communities?
    - What technologies can be leveraged to boost staple productivity and insure against food price risk?

    - How can digital technology be effectively utilized to modernize payment systems and facilitate the participation of small-scale farmers in value chains, to enhance their integration into domestic and international markets?
- How can regional food trade be facilitated to improve food security in the region?
    - What are the potential benefits and drawbacks of promoting inter-regional agricultural trade?

3. Overcoming farmers' constraints to technology adoption

Agricultural productivity and the adoption of yield-improving technologies remain limited across many LMICs, with farmer demand for potentially profitable technologies often low due to information gaps, adoption costs, and risk (Emerick, 2018). There is a vast body of rigorous research focused on both identifying the constraints farmers in LMICs face when making a decision about whether to adopt a new technology or practice and designing appropriate interventions to help farmers' overcome any barriers they face in making productivity-increasing investments (de Janvry et al., 2009; de Janvry and Sadoulet, 2020; Bridle et al., 2019).

Common constraints identified in the literature include information, credit, savings, risk and insurance, input/output market access, access to land, access to labor, and other externalities (Jack, 2013; Suri and Udry, 2024). In recent years, research has also addressed constraints, such as gender-specific barriers, infrastructure, institutional and regulatory barriers, transaction and search costs, and variable climate. This research, however, has found mixed results on some topics, revealing new, important challenges and questions yet to be answered (Suri and Udry, 2024). For instance, research on agricultural information provision or extension services shows that the transfer of information can be improved when leveraging tools like information and communication technologies, incentivizing trainers or information providers, or facilitating social learning between neighbors (J-PAL, 2023). However, many of these studies either did not collect data on or were unable to detect an effect on yields or profits after farmers adopted and used the new technology promoted through the information shared.

Building on this existing evidence base, UJALA seeks to deepen understanding of the constraints farmers face, how they can be addressed, as well as how to facilitate and incentivize investment when barriers are overcome. A changing climate adds further complexity to adoption decisions, underscoring the need for new research on soil health, efficient input use, and climate-resilient production systems. Understanding how farmers perceive and respond to soil

testing results, agronomic recommendations, and demonstration-based learning are a central priority. OCP Nutricrops is also interested in evaluating the impacts of different delivery channels—including agronomist networks, digital platforms, distributor and input market partnerships, and collaborations with the public sector. Proposals that compare delivery approaches, identify key cost drivers, or assess the conditions under which specific models succeed would be especially valuable for informing scale-up decisions.

Some relevant questions include:

- What are the constraints to farmers using improved practices and/or inputs?
    - For instance, are technologies available in the market, but not well-tailored to local conditions?
    - Do farmers face multiple constraints that equally affect their decisions and investments?
- What interventions are needed to alleviate these constraints?
    - Which training programs are effective?
    - How much do liquidity (or credit/financing) constraints matter? For example, would tailored credit products that span the agricultural cycle help to facilitate investment in agriculture by small-scale farmers?
    - How could bundling technologies or services affect take-up and long-term adoption?
- What are the tradeoffs between ex ante (e.g., drought-resistant crops) and ex post (e.g., weather insurance) adaptation strategies on farmers' resilience?
- How can programs be designed to encourage willingness to pay for and take-up risk-protecting products and technologies, such as stress-tolerant crops, index insurance, or climate-sensitive agricultural practices?
- Are there technologies that can really move the needle on climate adaptation? If so, how do we trial/test and adapt them to local contexts?
- Which delivery approaches are most effective at increasing farmer adoption of productive technologies? What are the major cost drivers of each approach, and how do these affect scalability? In what contexts or environments do specific scaling models perform best?

4. Improving access to input and output markets

Addressing questions of output quality and ensuring the existence of competitive or functioning markets is equally important as increasing productivity to improve the overall welfare of agricultural households. Input markets do not often reach farmers in their villages, so understanding where and under what conditions farmers are able to purchase inputs and interact with input dealers is important. Not all farmers, especially women, can travel out of villages to access inputs; therefore, understanding these constraints and how to alleviate them is crucial.

Not only must markets exist, but the timing and structure of markets are also critical for farmers' production process. Input markets, on one hand, must be accessible at the time farmers need to make investments and are especially useful when these markets carry high-quality inputs (Hsu and Wambugu, 2023; Deutschmann et al., 2023), offer flexible financing options (Casaburi and Reed, 2022), and connect farmers with post-harvest buyers. Ag-input dealers may organize markets in advance of the planting season, as liquidity and commitment contracts organized in the post-harvest period have similar effects on farmer input demand (Dillon and Tomaselli, 2022). On the other hand, output markets, which are physical and digital spaces where farmers and sellers meet to negotiate prices for the exchange of agricultural goods, must also exist and be physically accessible and navigable by farmers (e.g., farmers have the right level of price and market information to engage, they know who the buyers are and can choose among options, etc.). Small-scale farmers in LMICs often lack access to profitable markets and value chains for many reasons, such as high search costs, lack of information, and inaccessibility due to inadequate road and bridge infrastructure, distance to urban centers, and lack of transport options (de Janvry and Sadoulet, 2020; J-PAL and CEGA, 2024).

When farmers are unable to access markets or if the markets to which they have access face low prices despite high demand, farmers do not profit from increasing yields. Making investments in inputs, when available, or adopting new practices or technologies that enable farmers to grow higher volumes or higher-quality crops for local or export markets will therefore not be worthwhile to farmers, potentially reducing their incentives to adopt improved technologies that may increase production, maximize profits, and improve their welfare. As such, understanding market dynamics, structures, costs, and flows are critical to improving farming households' well-being. OCP is particularly interested in topic areas on aggregation mechanisms, access to buyers, price information, and commercialization pathways that strengthen the economic returns to agricultural investment and support scaling as well as understanding how integration into output markets influences farmers' incentives to adopt improved agricultural inputs and practices.

Some relevant questions include:

- How can the integration of rural and urban markets support farmers?
- To what extent does market access matter on both the input and output side? How can we best improve market access?
- Does improving farmers' access to input sellers and markets affect farmers' food security and profitability? To what extent?
- What are the sources of input dealer's business growth? Why do input dealers or other supply-side actors not sell to farmers? What prevents them from selling in rural villages?
- What is inhibiting output dealers/traders from aggregating in rural areas if farmers are interested in selling?
- Which characteristics determine the market structure, efficiency, and profitability of input sellers and buyers? Which interventions improve competitiveness in these markets? Which interventions help these firms deliver services that benefit farmers?
- How does facilitating connections within the value chain affect buyer trust and stability at harvest?
- What are effective ways to organize input and output markets?

5. Fertilizer customization and small-scale farmer outcomes

The decision between adopting and using customized fertilizers and blanket formulas is pivotal for small-scale farmers. Customized fertilizers, tailored to local soil conditions and crop requirements through soil testing and agronomic expertise, offer a precise approach to address nutrient deficiencies and enhance crop yields (Vanlauwe et al., 2019). Conversely, blanket formulas represent generic fertilizers lacking specificity to the unique soil characteristics and crop demands of individual farming contexts. Research indicates that the utilization of blanket formulas may lead to suboptimal nutrient application, resulting in ineffective resource utilization and decreased agricultural productivity (Kassam, 2018).

While the potential advantages of customized fertilizers for small-scale farmer productivity and profitability are apparent (Chivenge et al., 2022), substantial knowledge gaps persist. Despite initial evidence suggesting the effectiveness of customized fertilizer recommendations based on soil testing (Tittonell, 2020), the translation of these findings into practical strategies for small-scale farmers in resource-limited settings remains limited. A core premise of OCP

Nutricrops' approach is that site-specific, nutrient-balanced fertilization outperforms uniform or nitrogen-heavy application. UJALA welcomes studies that test this premise rigorously, including evaluations of yield, quality, and profitability outcomes under customized versus conventional practices. Further research is imperative to comprehensively understand the socio-economic determinants that influence the adoption of customized fertilizers in order to devise effective strategies for surmounting adoption barriers among small-scale farmers.

Some relevant questions include:

- What are the primary constraints hindering small-scale farmers from adopting and utilizing customized fertilizer solutions, and to what extent do they differ across contexts?
- Do farmers make their own customized blends and how effective are these?
- What interventions are needed to address these constraints effectively, and how can tailored training programs enhance adoption rates?
- How can customized fertilizer solutions contribute to climate resilience and adaptation in the face of increasing weather variability and extreme events?
- What are the most effective approaches for scaling up the dissemination of customized fertilizer recommendations to reach a broader population of small-scale farmers?

III. Generating evidence to address the research agenda

1. Linking research priorities to evidence generation

The research priorities outlined above identify key gaps in knowledge related to improving farmers' productivity, profitability, food security, and environmental sustainability. UJALA supports rigorous impact evaluations designed to generate actionable evidence to understand and improve the uptake and implementation of farmer-facing interventions and estimate their impacts and generalizability across contexts and over time. These learning objectives are shared with OCP Nutricrops.

To advance these objectives, UJALA supports two complementary categories of evaluations.

2. Evaluation modalities

Embedded evaluations

The first category consists of evaluations conducted in partnership with OCP Nutricrops, the organization that serves as the implementing partner responsible for delivering farmer-facing programs being evaluated.

These programs aim to address multiple constraints to agricultural productivity through integrated farmer-support approaches combining advisory services, access to inputs, agronomic recommendations, demonstration activities, and market engagement mechanisms. Evaluating such initiatives allows UJALA to study how agricultural innovations perform when delivered at scale through operational systems.

Embedded evaluations focus on:

- assessing the effectiveness of OCP Nutricrops initiatives under real implementation conditions;
- understanding how delivery mechanisms influence adoption and outcomes; and
- generating evidence to inform program adaptation and strategic decision-making.

These evaluations are directly anchored in ongoing operational activities and contribute directly to OCP Nutricrops' strategic learning priorities. UJALA supports the following funding instruments for embedded evaluations:

- **Pilot studies**
  Support early-stage testing of programs or evaluation designs to assess feasibility, implementation, and mechanisms of impact.
  Indicative budget cap: up to USD 75,000.

- **Full randomized controlled trials**
  Support rigorous impact evaluations designed to estimate causal effects on adoption, productivity, profitability, food security, or environmental outcomes.
  Indicative budget: up to USD 300,000 for research costs, plus up to USD 75,000 for implementation-related costs where required.

Researcher-led evaluations

The second category consists of Researcher-Led Evaluations, in which research teams identify and design an evaluation aligned with UJALA's research agenda and partner with an external implementing organization responsible for delivering the intervention.

Under this modality:

- The research team leads the identification of the intervention and evaluation design;
- The implementing partner is brought forward by the researchers; and
- OCP Nutricrops is not the implementing organization, although studies remain aligned with UJALA research priorities.

Researcher-Led Evaluations complement embedded evaluations by enabling UJALA to support innovative interventions and partnerships and to generate evidence on new approaches or implementation contexts beyond existing operational portfolios, while remaining aligned with OCP Nutricrops' strategic priorities.

UJALA supports the following funding instruments for researcher-led evaluations:

- **Pilot studies**
  Support early-stage testing of programs or evaluation designs to assess feasibility, implementation, and mechanisms of impact.
  Indicative budget cap: up to USD 75,000.

- **Full randomized controlled trials**
  Support rigorous impact evaluations designed to estimate causal effects on adoption, productivity, profitability, food security, or environmental outcomes.
  Indicative budget: up to USD 300,000 for research costs, plus up to USD 75,000 for implementation-related costs where required.

- **Short-term follow-up studies**
  Provide funding to complete endline data collection when initial funding did not cover final outcome measurement.
  Indicative budget range: up to USD 100,000.

- **Long-term Follow-up studies**
  Support additional data collection to assess the persistence of adoption and its impacts several years after implementation to measure long-term impact.
  Indicative budget range: up to USD 200,000.

- **Scale-up or replication studies**
  Support evaluation of interventions previously shown to be effective and adapted to new contexts relevant to OCP Nutricrops' objectives.
  Indicative budget cap: up to USD 75,000.

Together, these study types allow UJALA to generate cumulative learning across stages of program development, from early exploration to validation and adaptation at scale.

3. Geographic scope

Both evaluation modalities operate within geographies where OCP Nutricrops has led, is leading, or plans to lead farmer-centric activities, ensuring alignment between research investments and areas of strategic engagement.

These currently include:

- Africa: Ghana, Senegal, Nigeria, Côte d'Ivoire, Cameroon, Benin, Rwanda, Tanzania, Togo, Zambia, Ethiopia, Kenya, and Morocco

- South Asia: India, Pakistan, Bangladesh
- Southeast Asia: Thailand, Indonesia
- Latin America: Brazil, Argentina, Chile, Paraguay, Uruguay
- Europe: France
- North America: United States and Canada

4. Proposal selection and research governance

Both types of UJALA-supported evaluations are selected through structured review processes designed to ensure scientific rigor, feasibility, and alignment with the research agenda.

Eligibility

UJALA funding is open to research teams led by **J-PAL Affiliated Professors or J-PAL Invited Researchers**, who must serve as Principal Investigator (PI) or eligible co-Principal Investigator (co-PI) on the project. UJALA African Scholars are also eligible to apply for Pilot Studies. Eligible researchers are expected to play an active and substantive role in the study, ensuring scientific oversight, quality control, and engagement throughout all stages of the research. Their participation must not be limited to providing access to funding or institutional affiliation. All eligible researchers must also be in good standing with J-PAL, including being up to date on reporting requirements for any existing grants across J-PAL initiatives and labs.

IV. Reference list

Abdul Latif Jameel Poverty Action Lab (J-PAL). 2019. "Evidence for Transformation: Framing a Research Agenda in Agriculture for Development." J-PAL Framing Paper. Last modified January 2019. https://www.atai-research.org/atai-framing-paper

Abdul Latif Jameel Poverty Action Lab (J-PAL). 2022. "Evidence for Digital and Bundled Services: Framing a Research Agenda for the Digital Agricultural Innovations and Services Initiative." J-PAL Framing Paper. Last modified July 2022. https://www.povertyactionlab.org/sites/default/files/review-paper/Framingpaper_EvidenceforDigitalandBundledServices.pdf

Abdul Latif Jameel Poverty Action Lab (J-PAL). 2023. "Improving Agricultural Information and Extension Services to Increase Small-Scale Farmer Productivity." J-PAL Policy Insight. Last modified September 2023. https://www.povertyactionlab.org/policy-insight/improving-agricultural-information-and-extension-services-increase-small-scale

Abdul Latif Jameel Poverty Action Lab (J-PAL) and Center for Effective Global Action (CEGA). 2025. "Increasing small-scale farmers' access to agricultural markets." J-PAL Policy Insights. Last modified January2025. https://www.povertyactionlab.org/policy-insight/increasing-small-scale-farmers-access-agricultural-markets

Arment, C. Jean. 2020. "Food Dependency in sub‐Saharan Africa: Simply a Matter of 'Vulnerability,' or Missed Development Opportunity?" Development and Change 51(2): 283-323. https://doi.org/10.1111/dech.12532

Baptista, Diogo Miguel Salgado, Mai Farid, Dominique Fayad, Laurent Kemoe, Loic S. Lanci, Pritha Mitra, Tara S. Muehlschlegel, Cedric Okou, John A Spray, Kevin Tuitoek, and Ms. Filiz D Unsal. 2022. "Climate Change and Chronic Food Insecurity in Sub-Saharan Africa." International Monetary Fund2022(016): i–38. https://doi.org/10.5089/9798400218507.087

Bridle, Leah, Jeremy Magruder, Craig McIntosh, and Tavneet Suri. 2019 "Experimental Insights on the Constraints to Agricultural Technology Adoption." Working Paper, March. https://www.atai-research.org/experimental-insights-on-the-constraints-to-agricultural-technology-adoption

Carter, Michael, Rachid Laajaj, and Dean Yang. 2021. "Subsidies and the African Green Revolution: Direct Effects and Social Network Spillovers of Randomized Input Subsidies in Mozambique." American Economic Journal: Applied Economics 13(2): 206–229. https://doi.org/10.1257/app.20190396

Casaburi, Lorenzo, and Tristan Reed. 2022. "Using Individual-Level Randomized Treatment to Learn about Market Structure." American Economic Journal: Applied Economics 14(4): 58–90. https://doi.org/10.1257/app.20200306

P. Chivenge, S. Zingore, K.S. Ezui, S. Njoroge, M.A. Bunquin, A. Dobermann, and K. Saito. 2022. "Progress in research on site-specific nutrient management for smallholder farmers in sub-Saharan Africa." Field Crops Research 281. https://doi.org/10.1016/j.fcr.2022.108503

Corral, José, Alain de Janvry, Elisabeth Sadoulet, and others. 2022. "Autonomy and Specificity in Agricultural Technology Adoption: Evidence from a Randomized Experiment in Mexico." Working Paper 3587. Last updated December 2022. https://www.povertyactionlab.org/evaluation/encouraging-technology-adoption-agriculture-through-recommendations-and-kind-transfers

D'Amour, Christopher Bren, and Weston Anderson. 2020. "International Trade and the Stability of Food Supplies in the Global South." Environmental Research Letters 15(7): 1–10. https://doi.org/10.1088/1748-9326/ab832f

Dar, Manzoor H., Alain de Janvry, Kyle Emerick, Elisabeth Sadoulet, and Eleanor Wiseman. 2024. "Private Input Suppliers as Information Agents for Technology Adoption in Agriculture." American Economic Journal: Applied Economics 16(2): 219–248. Last updated February 2024. https://www.aeaweb.org/articles?id=10.1257/app.20220037

De Janvry, Alain, Derek Byerlee, and Elizabeth Sadoulet. 2009. "Agriculture for Development: Toward a New Paradigm." Annual Review of Resource Economics 1:15–31. https://doi.org/10.1146/annurev.resource.050708.144239

De Janvry, Alain, and Elisabeth Sadoulet. 2020. "Using Agriculture for Development: Supply- and Demand-Side Approaches." World Development 133. https://doi.org/10.1016/j.worlddev.2020.105003

Deutschmann, Joshua W., Maya Duru, Kim Siegal, and Emilia Tjernstrom. 2023. "Relaxing Multiple Agricultural Productivity Constraints at Scale." SSRN Working Paper, May. https://doi.org/10.2139/ssrn.4479905

Dillon, Andrew, and Nicoló Tomaselli. 2022. "Making Markets: Experiments in Agricultural Input Market Formation." Working Paper, June. https://poverty-action.org/publication/making-markets-experiments-agricultural-input-market-formation

Emerick, Kyle. 2018. "Agricultural Extension and Technology Adoption in India: Randomized Controlled Trial Evidence." Agricultural Economics 49(3): 307–320. Last updated April 2018. https://doi.org/10.1111/agec.12419

Food and Agriculture Organization of the United Nations (FAO). 2022. "Fertilizer consumption (kilograms per hectare of arable land).".Last Accessed August 2025. https://data.worldbank.org/indicator/AG.CON.FERT.ZS

FAO. 2022. "Food Outlook – Biannual Report on Global Food Markets." Food Outlook, November. Rome. https://doi.org/10.4060/cc2864en

FAO. 2023. "The state of food security and nutrition in the world 2023." https://openknowledge.fao.org/server/api/core/bitstreams/f1ee0c49-04e7-43df-9b83-6820f4f37ca9/content/state-food-security-and-nutrition-2023/food-security-nutrition-indicators.html

FAO and AUC. 2021. "Framework for Boosting Intra-African Trade in Agricultural Commodities and Services." Addis Ababa, Ethiopia. https://doi.org/10.4060/cb3172en

FAO, IFAD, UNICEF, WFP, and WHO. 2023. "The State of Food Security and Nutrition in the World 2023: Urbanization, Agrifood Systems Transformation and Healthy Diets across the Rural–Urban Continuum." Rome: FAO. https://doi.org/10.4060/cc3017en

FAO, IFAD, UNICEF, WFP and WHO. 2024. "The State of Food Security and Nutrition in the World 2024 – Financing to end hunger, food insecurity and malnutrition in all its forms." Rome. https://doi.org/10.4060/cd1254en

Headey, Derek, and Marie Ruel. 2024. "Rising Food Prices Are Putting Children in Harm's Way." VoxDev. Published February 19. https://voxdev.org/topic/health/rising-food-prices-are-putting-children-harms-way

Hemming, David J., Ephraim W. Chirwa, Andrew Dorward, Holly J. Ruffhead, Rachel Hill, Janice Osborn, Laurenz Langer, Luke Harman, Hiro Asaoka, Chris Coffey, and Daniel Phillips. 2018. "Agricultural Input Subsidies for Improving Productivity, Farm Income, Consumer Welfare, and Wider Growth in Low- and Lower-Middle-Income Countries: A Systematic Review." Campbell Systematic Reviews 14: 1–153. https://doi.org/10.4073/csr.2018.4

Hodder, Graeme, and Brenda Migwalla. 2023. "Africa's Agricultural Revolution: From Self-Sufficiency to Global Food Powerhouse." White & Case. Published July 12. https://www.whitecase.com/insight-our-thinking/africa-focus-summer-2023-africas-agricultural-revolution

Hsu, Eric, and Anne Wambugu. 2023. "Can Informed Buyers Improve Goods Quality? Experimental Evidence from Crop Seeds." G2LM LIC Working Paper 74, September. https://g2lm-lic.iza.org/wp-content/uploads/2023/10/glmlic-wp074.pdf

Jack, B. Kelsey. 2013. "Constraints on the Adoption of Agricultural Technologies in Developing Countries." J-PAL and CEGA Review Paper. Last modified May. https://fr.scribd.com/document/180069540/Market-Inefficiences-and-Adoption-Agricultural-Technologies-Developing-Countries

Jain, Meha, Shahid Naeem, Ben Orlove, Vijay Modi, and Ruth S. DeFries. 2015. "Understanding the Causes and Consequences of Differential Decision-Making in Adaptation Research: Adapting to a Delayed Monsoon Onset in Gujarat, India." Global Environmental Change 31: 98–109. https://doi.org/10.1016/j.gloenvcha.2014.12.008

Jérémie Gignoux, Karen Macours, Daniel Stein and Kelsey Wright. (2022). "Input subsidies, credit constraints, and expectations of future transfers: Evidence from Haiti." American Journal of Agricultural Economics 105(3): 809-835. https://doi.org/10.1111/ajae.12337.

Kassam, A., T. Friedrich, and R. Derpsch. 2018. "Global Spread of Conservation Agriculture." International Journal of Environmental Studies 76(1): 29–51. https://doi.org/10.1080/00207233.2018.1494927

Monsuru Adekunle Salisu, Che Rus Ridzwan, Yusuf Opeyemi Oyebamiji, Norhanizan Usaizan, Abiodun Emmanuel Abioye, Idris Fadheelah Biola, Nurudeen Babatunde Bamiro, Ahmed Kayode Omowunmi, Hussain Luqman. 2024. "Disruption of the Covid-19 pandemic on the agri-food sector: A systematic review of its implications in post-pandemic and future of food security[J]." AIMS Agriculture and Food, 9(1): 148-168. https://www.aimspress.com/article/doi/10.3934/agrfood.2024009

Okou, Cedric, John Spray, and Filiz D. Unsal. 2022. "Staple Food Prices in Sub-Saharan Africa: An Empirical Assessment." IMF Working Papers 135, July. https://www.imf.org/en/Publications/WP/Issues/2022/07/08/Staple-Food-Prices-in-Sub-Saharan-Africa-An-Empirical-Assessment-520567

Omer Karasapan. 2020. "Middle East food security amid the COVID-19 pandemic." The Brookings Institution. https://www.brookings.edu/articles/middle-east-food-security-amid-the-covid-19-pandemic

Rakotoarisoa, Manitra A., Massimo Iafrate, and Marianna Paschali. 2011. "Why Has Africa Become a Net Food Importer : Explaining Africa Agricultural and Food Trade Deficits." Rome: Trade and Markets Division, Food and Agriculture Organization of the United Nations. https://www.fao.org/fileadmin/templates/est/PUBLICATIONS/Books/AFRICA_STUDY_BOOK_REVISED_low_res.pdf

Ryan, Nicholas. 2019. “Replacing an Inefficient Policy of Free Agricultural Electricity in India.” J-PAL South Asia Evaluation Summary. Last updated 2019. https://www.povertyactionlab.org/evaluation/replacing-inefficient-policy-free-agricultural-electricity-india

Ricker-Gilbert, Jacob, and Thomas S. Jayne. 2017. "Estimating the Enduring Effects of Fertiliser Subsidies on Commercial Fertiliser Demand and Maize Production: Panel Data Evidence from Malawi." Journal of Agricultural Economics 68(1): 70–97. https://doi.org/10.1111/1477-9552.12161

Siti Fatimahwati Pehin Dato Musa and Khairul Hidayatullah Basir. 2021. “Covid-19 and food security in Southeast Asia.” International Journal of Sustainable Agricultural Management and Informatics7(2): 1. https://www.researchgate.net/publication/352115945_Covid-19_and_food_security_in_Southeast_Asia

Suri T, C Udry, J C. Aker, C B. Barrett, L Falcao Bergquist, M Carter, L Casaburi, R Darko Osei, D Gollin, V Hoffmann, T Jayne, N Karachiwalla, H Kazianga, J Magruder, H Michelson, M Startz, E Tjernstrom. 2024. “Agricultural Technology in Africa” VoxDevLit 5(2). https://voxdev.org/sites/default/files/2024-04/Agricultural_Technology_Africa_Issue_2.pdf

Sybille de La Hamaide. 2023. “World food prices hit record high in 2022” Reuters. https://www.reuters.com/markets/world-food-prices-hit-record-high-2022-despite-december-fall-2023-01-06

Tittonell, Pablo. 2020. “Assessing resilience and adaptability in agroecological transitions.” Agricultural Systems 184 (September) https://doi.org/10.1016/j.agsy.2020.102862

UN Trade and Development (UNCTAD). 2020. “COVID-19 and food security in vulnerable countries”. https://unctad.org/news/covid-19-and-food-security-vulnerable-countries

Vanlauwe, Bernard, Ric Coe, and Ken E. Giller. 2016. “Beyond Averages: New Approaches to Understand Heterogeneity and Risk of Technology Success or Failure in Smallholder Farming.” Experimental Agriculture 55 (S1) (May): 84–106. https://doi.org/10.1017/S0014479716000193

Yohannes-Kassahun, Bitsat. 2023. “One Year Later: The Impact of the Russian Conflict with Ukraine on Africa.” Africa Renewal. Published on February 13. https://www.un.org/osaa/news/one-year-later-impact-russian-conflict-ukraine-africa