PAD's evidence base and monitoring data

PAD conducts a series of experiments every season to iterate and test the design of our service and learn how to improve our impacts.

Use of experimentation and impact evaluations

We take rigor of evidence seriously. PAD conducts experiments to continuously test system and message design tweaks and measure the effects of our messages on usage, knowledge, and behavior. We also set up impact evaluations on yields and profits in selected settings.

PAD frequently uses A/B tests across our services to assess, refine, and improve key components of our messages, service delivery and system designs. By delivering more accessible and more actionable information we aspire to improve user engagement. By iterating design, content and service delivery we can concurrently reach more farmers and increase impacts on existing farmers with the same fixed costs. The composite effect is improved cost effectiveness. We attach a document (**Evidence Table.pdf**) that summarizes all experiments that PAD and affiliated researchers have conducted. The experiments are categorized into three categories:

- Assessment of mobile phone-based interventions for farmers
- System and message design tweaks
- Assessment of mobile phone-based intervention for extension agents (preliminary findings)

We are in the process of building an experiment registry to keep track of all ongoing and completed experiments. This registry will be made publicly available through our website.

In addition, PAD is planning to conduct several evaluations that will contribute to our evidence base on the impact of our services on farmer adoption of recommended agricultural practices, crop yields, and milk production. The evidence generated from these evaluations will help us refine our cost effectiveness estimates with greater clarity on parameters and assumptions, and will improve our cost effectiveness by identifying areas for improvements.

Specifically, we aim to conduct the following impact evaluations:

- PAD is about to roll out an impact evaluation of our two way voice-based advisory service for rice farmers in Odisha, India known as *Ama Krushi*. PAD has plans to collect plot boundary data from farmers and test satellite-based approaches to measuring the direct impact of our services on yields over two seasons. Due to the variability of yield outcomes by season, collecting panel data across two seasons will be particularly useful to identify the magnitude of the impact of our services and sensitivity to varying weather and seasonal conditions. This evidence can contribute in future to refining cost effectiveness estimates where there is uncertainty around seasonal variability.
- In partnership with established dairy cooperatives in Kenya, PAD plans to conduct an impact evaluation of its dairy advisory services using high-frequency administrative data on milk quantity, quality and income at the farmer level, as available. The findings from

this evaluation are expected to be particularly useful due to the high frequency of milk production data. Instead of having to wait for the harvest at the end of a cropping season, when using milk production data we can observe more frequent outcomes and adjust for variability. We hope that this evidence can contribute to refining cost effectiveness estimates in contexts where there is uncertainty with a limited number of data points (limited number of harvests). High frequency data on milk production also gives us the ability to more rapidly deploy A/B test experiments and observe impacts on production outcomes more quickly.

- We plan to expand an on-going impact evaluation of the Uganda Coffee Agronomy Training Program (UCAT) to measure the impacts of a two-year in-person extension program on management practices and yields. Specifically we intend to estimate the impact of PAD's service on yields using machine learning to identify key practices that are most important to increasing yields. This evidence can contribute to improving our cost effectiveness by focussing the content of our messages to promote adoption of the most important agricultural practices with the highest propensity to increase yields.

Monitoring data

We use a variety of technology to serve farmer populations and the amount of insights we can obtain from the data on our platform varies widely. PAD is in the process of building a system to track a set of usage and behavioral outcomes across programs. This process starts with identifying appropriate metrics to track in each program. We are sharing with you work-in-progress materials from India, where our efforts in this space are most advanced.

Overview: PAD's service in India consists of weekly push voice messages with pre-recorded advice ("outbound" service) and a hotline service under which farmers can call in and record a question. We track usage metrics from the outbound service and the hotline service. This will be completed with the data on self-reported adoption and satisfaction rating of messages from polling surveys in the near future. We plan to develop a back-end system to automate the updating of these data (for example by creating a dashboard) over time.

Sample Usage Tracker: We attach an example of PAD service usage tracker from India, where we operate an IVR service and track three usage metrics: pick up rate: % of farmers who pick up our advisory call in a given week, listening rate: average proportion of calls being listened to (conditional on picking up the call), and % of farmers calling into our hotline service.

India Polling Guideline: The India team has implemented a polling survey across all programs to gather data on recollection of messages, self-reported adoption of recommended practices, and satisfaction from a few hundred farmers per program on a bi-weekly basis. The reference time frame for all the questions is preceding two weeks, allowing us to track the changes in farmer reactions to messages. The initial volume of data is currently being analyzed.