



PROGRESS REPORT

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CROWDSOURCING CROP IMPROVEMENT: EVIDENCE BASE AND OUTSCALING MODEL

Submitted to:

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Executive summary

1. Final decisions were made to constitute the group of partners to execute this project. Agreements have been drafted and are now being processed.
2. A field visit and a series of meetings were organized to gather information, for the partners to get to know each other and to agree on the approach.
3. An approach was defined for the randomized control trial, increasing the sample size and making more efficient use of budgets.
4. The project is on track in executing the main activities for the reporting period corresponding to Milestone #1.

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Project description

The project *Crowdsourcing Crop Improvement: Evidence base and outscaling model* has as its main goal that “Smallholder farmers increase the productivity of common bean through the use of improved varieties suited to their conditions.”

Project activities will contribute to two main objectives:

Objective 1 Crowdsourced Crop Improvement (CCI) implemented and mainstreamed into practice of NGOs and government extension in Central America

Intermediate result 1.1 Women and men are using increased technical capacity to apply CCI

Intermediate result 1.2 Policy and decision makers demonstrate awareness of CCI and its advantages

Objective 2 Crowdsourced Crop Improvement developed into scalable, user-friendly solution

Intermediate result 2.1 Local, regional and international research and development agencies have adopted and outscaled CCI

Intermediate results 2.2 Scientific community recognizes evidence base on the costs and impacts of CCI

Achievements to date and major milestones

This report refers to Milestone #1 as described in the grant agreement:

Milestone #1

The milestone requirement is considered fulfilled when the following actions have occurred and the deliverables and/or associated narrative have been submitted to the AOR for review/concurrence:

- Updated project implementation plan narrative accompanied by:
 - Key activities and any updates or changes that have been made since the full application was submitted,
 - Identification of additional required partners, including PhD candidate listed in the application, other personnel, and partner organizations.

Updated project implementation plan narrative

The implementation plan will follow the original logframe, but increasing sample sizes across the randomized control trial. We have decided to increase sample sizes after a re-estimation of the budget required with a different survey strategy. In the new plan, CATIE-Esquipulas will run the survey using the Open Data Kit using smartphones, which allows for cheaper implementation and easier data quality control, while omitting data digitization from paper forms. The reduction in cost will make it possible to have larger sample sizes, which in turn makes it possible to (1) estimate variety diffusion rates beyond the direct beneficiaries, which is crucial to estimate overall benefits and (2) sampling communities that will serve as controls, where no treatment is given, in order to estimate absolute yield benefits, which will enable absolute benefit estimates in dollar terms. The details of the statistical design will be reported in the Milestone #2 report.

Activities and updates

Field visit

In March 24-27, members of the project team from Bioversity, CATIE and Zamorano made a field visit to the Trifinio area where the RCT will be implemented in order to present technical details to the CATIE field office, to visit some of the partner organizations of CATIE-MAP and to assess the situation of the production of common beans in the area.

Results of this meeting were:

- *A clear sense of the gap that the new varieties will fill.* We visited an agricultural cooperative specializing in bean production and commercialization, Chorti 'jol, which will be an important partner of CATIE in the project. The cooperative has identified the currently available bean varieties as one of its main challenges, as the current drought-tolerant variety is not fit for commercialization and the varieties that are fit for commercialization lack in good agronomic characteristics. In our field visits, other farmers gave an assessment of the bean varieties available that concurs with the view of the cooperative leaders. Zamorano, through a number of recent projects, has developed varieties that are more drought-tolerant, have good grain characteristics, disease resistance, and good other agronomic characteristics. Based on this assessment, we believe that the varieties on offer will be well received by farmers.
- *A clear vision of what the project wants to achieve.* CATIE local personnel and staff from partner organizations gained a very clear idea of the exact purpose of the project (testing both the varieties and the delivery mechanisms) and showed much enthusiasm for the project. Also, we achieved a shared understanding of the randomized control trial design, identifying ways to explain this approach and especially the randomization aspects to partner organizations.
- *Project partners know each other and have started to collaborate.* CATIE and Zamorano have not worked together before this project yet but will have to

coordinate a number of technical activities, such as seed multiplication. The field visit and meetings around it have made it possible for the project team to get to know each other.



Figure 1. Chorti'jol, a farmer cooperative specializing in bean production, has identified the improvement of bean varieties as one of its main objectives for 2015.



Figure 2. Farmers from the area provided detailed information about bean production challenges in the area.



Figure 3. The project area is part of the Dry Corridor of Central America. Drought has been an important problem in 2014.

Project meetings

In addition to the meeting around the field visit, a series of short meetings and Skype calls were organized to reach agreement about a number of technical aspects of the implementation of the crowdsourcing trials and the randomized control trial in April. We have calculated minimum detectable effects based on the sample sizes that are attainable with the budget. We now have a clear approach in that we draw only on farmers that are members of partner organizations, which allow isolating the effect of the delivery mechanism, and rapidly execute randomization at the individual level using lists of members of the organizations.

Change in partnership

Due to incompatibility in timing of the project and the requirements of graduate students of Virginia Tech, this partner decided it was better to withdraw from the project. The project team identified an excellent alternative partner, the Research Program in Economics and Environment for Development of CATIE (acronym: CATIE-IDEA), led by [Francisco Alpizar](#), PhD. [Juan Robalino](#), PhD, will lead the daily implementation of the evaluation aspects of the project. Dr Robalino has experience in implementing randomized control trials. [Laura Villalobos-Fiatt](#) will participate as the PhD candidate that was foreseen in the original proposal. Laura is PhD student in a collaborative programme between CATIE-IDEA and the University of Gothenburg in Sweden and participated in the executive course on evaluating social programs of the Abdul Latif Jameel Poverty Action Lab (J-PAL).

Identification of additional required partners

No additional main partners are required for the successful execution of this project for 2015-2016. For Guatemala, CATIE is in the process of identifying local community organizations to participate in the randomized control trial. For Nicaragua, the organizations have been identified already. More detailed reporting on this will follow under Milestone #2, when we apply the randomization at the community and individual level.

Signature of agreements

We have defined the scope of work of all the yearly agreements to be signed with the partners. Clearance and signing procedures are well underway for all of them.

Emerging outcomes

The project leader, Jacob van Etten, has been invited as a key note speaker to the main agricultural science conference in Central America, the PCCMCA. He will talk about this project, among other things, in a plenary talk to a group of around 300 agricultural scientists from the entire region. Also, we will use this opportunity to have conversations with the director of the national agricultural research institute of Guatemala, ICTA, about opportunities to use the Crowdsourcing Crop Improvement methodology in the technology diffusion activities of ICTA and its partners and the organization of the presentation of the project to a group of government officials.

Problems encountered and methods for overcoming them

At the moment, two problems were encountered. Firstly, the withdrawal of Virginia Tech from the project, which was addressed in the way described above and did not cause major disruption due to the early stage of the project and timely announcement. The other problem was that in Trifinio two organizations that had been previously identified as potential participants, did not want to participate in the randomized control trial when they came to understand the nature of the randomization process. CATIE will identify additional organizations to participate in the trial in order to reach the required sample size and identify ways to adjust budgets (CATIE co-financing) to address this issue.

Conclusions for the following reporting period

Good progress has been made in the reporting period. No delays are expected for the following reporting period. In the Milestone #2 report we will give a full overview of the design decision made and the final setup of the trial.

Publications, papers and reports

The project was [announced on the website of Bioversity](#) on December 10, 2015. This announcement was also shared on the [USAID DIV blog](#). The message about the start of this project was spread also through social media and was picked up by a number of other websites.