

Project title: Development Trait Prioritization as Part of a Sub-Saharan African Crop Variety Replacement Strategy

Brief Summary:

- The CGIAR Excellence in Breeding (EiB) platform seeks to collaborate with AbacusBio to establish two projects aimed at deploying the approaches and tools outlined below. This fits under the CGIAR – EiB Product Design and Management module with the specific aim to aid in the clear definition of client-oriented product profiles.
- EiB will provide matching funding (not to exceed US\$35,000/ project) to enable CGIAR members to take advantage of this opportunity to take a leap forward in the definition of client-focused, varieties replacement.
- The winning CGIAR crop-breeding program will work directly with AbacusBio and be supported by EiB, to deliver the projects.

Start date: March, 2019 **End date:** June, 2020

Project Recruitment Period: January – February 2019

Total Projects: Two crops (To Determined Based upon Project Supported through Matching)

Principal investigator/coordinator:

- Product Sponsor: George Kotch (EiB Product Design Module Leader)
- Project Manager - AbacusBio: Tim Byrne
- Project Manager - EiB-Module #1: Tawanda Mashonganyika
- Project Manager – CGIAR Crop: To Be Determined

Geographic Location: Africa (Ghana, Kenya, Uganda Preferred)

Total Budget: \$70,000 per project (2 Projects)

EiB Contribution: \$35,000 per project (Consultant Contract to AbacusBio Ltd)

CGIAR Center/CRP Contribution: \$35,000 per project (Consultant Contract – AbacusBio Ltd)

Keywords/research areas:

Trait preference, typologies, crop breeding, client participation, product profiles, economic valuation

Project Description and Objectives:

High-performing breeding programs know the needs of their customers, apply cross-functional expertise to product design, and implement upfront planning. These high-performing breeding programs focus on a variety replacement strategy guided by a well-designed, market-driven product profile. By adopting a new way of working based on product profiles, new product design can focus on client needs rather than being a by-product of scientific research interests.

The CGIAR Excellence in Breeding Platform's Product Profile tool focuses in on the most important traits needed to create effective products. This provides a blueprint for breeding teams to deliver impactful products in as short a breeding cycle as possible. Breeding teams, working like engineers, will follow this blueprint as part of a continuous improvement process to increase variety turnover. Increased variety turnover increases economic impact.

The variety replacement strategy relies on the cross-functional product design team's understanding "Basic" and "Value Added" traits. "Basic" or "Must Have" traits are features present in the leading variety targeted for replacement. "Value Added" traits are features targeted for the replacement variety, that would allow it to replace the leading variety in the market. It is critical that the design team understands the economic worth of "value added" traits to assure that product profiles are based upon data-driven assessments.

AbacusBio have developed a platform of survey approaches and tools – supported by software – to investigate preferences for trait improvements (1000Minds® software) and socio-demographics characteristics (SurveyGizmo software), combined with advanced analyses of survey outputs, to inform trait improvement priorities, market needs, and user-focused product profiles. These approaches have been designed specifically to value traits and inform breeding programs.

AbacusBio analyses will produce the following outcomes:

- a quantification of the relative importance of trait improvements (percent preference and economic terms)
- identification of typologies (group of "users" with different patterns of trait priorities),
- an understanding of socio-demographic or systematic drivers of trait priorities between *a priori* groups and typologies (e.g. industry segment, region, farm system, etc.)
- the development of a set of profiles (trait weightings) for the surveyed users.

Project objectives are to:

- Establish projects, focused on crop varieties, which will deliver a quantification of the relative importance of trait improvements in percent preference (1000Minds® output) and economic terms,
- Identify typologies (group of “users” with different patterns of trait priorities) and gain an understanding of socio-demographic or systematic drivers of trait priorities between *a priori* groups and typologies, and
- Establish product profiles (a set of trait weightings) for the surveyed users.

The outcomes expected:

1. greater user engagement in and buy-in to the process of developing new varieties (products) for farmers and stakeholders,
2. an understanding of the relative importance of traits for future plant development and selection programs and any market segmentation,
3. increased adoption of new varieties through transparency of approach and the use of quantifiable preference data in variety development, for particularly users.

Project Selection Criteria: Limit your proposal to 2 pages

- Demonstration of a crop team structure and allocation of time (by the CGIAR or CRP team) in order to ensure project delivery – including CGIAR or NARES support for visits by AbacusBio and EiB partners to centre/ region; named person(s) involved.
 - o This includes a commitment by the product development team to develop the survey questions and to provide SME expertise on the project.
- Demonstrate a strong commitment of developing results with a project management plan (including routine project meetings). Within this we could also consider requirements to include:
 - o a Project Charter (Provided) w/ Risk Analysis
 - o a Gantt chart
- Connection and involvement with at least one NARS program within a project
- Focus on the realistic geographic/ product profile target (i.e. the replacement of a dominant crop within an agroclimatic zones, with a trait-based variety replacement strategy)

- Include an estimate of scale of impact in terms of numbers of farmers/ communities affected
- Demonstration of how the outcomes will be used to inform/ change the existing breeding program/ replacement strategy

All criteria to be scored on a 1-5 scale, with scores assigned by George Kotch (EiB), Tim Byrne (AbicusBio), Michael Quinn (EiB) and Peter Amer (AbicusBio).