



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR CROP IMPROVEMENT CORNELL UNIVERSITY

Request for Applications:

Creation and Operation of
Centers of Innovation for Crop Improvement
(East Africa, West Africa, South Asia, and Latin America and the Caribbean)

Timeline

ISSUE DATE	March 1, 2020
WEBINAR	March 19, 2020
DEADLINE FOR WRITTEN QUESTIONS	March 23, 2020
DEADLINE FOR LETTER OF INTENT	April 10, 2020
CO-CREATION PHASE	April 24 - June 14, 2020
DEADLINE FOR SUBMISSION OF FINAL PROPOSAL	July 5, 2020
DATE TO ANNOUNCE SUCCESSFUL APPLICANTS	July 19, 2020



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Cornell University

Feed the Future Innovation Lab for Crop Improvement (ILCI) Centers of Innovation

EXECUTIVE SUMMARY

The Feed the Future (FtF) Innovation Lab for Crop Improvement (ILCI, ilci.cornell.edu) is part of the strategic investment by the U.S. Government to make transformative change in the food systems of target partner countries. FtF is the overarching U.S. government initiative on global hunger and food security. FtF programs work in close partnership with target countries to develop innovative agriculture advancements that break the poverty and hunger cycles. For further overview of the U.S. FtF initiative, please visit www.feedthefuture.gov.

The vision of ILCI is that national breeding programs drive genetic gain for the development of improved varieties for key product profiles that underpin economic growth, resilience and nutrition development goals. To reach this vision, ILCI will be focused on building extensive partnerships with breeding programs in East Africa, West Africa, South Asia, and Latin America and the Caribbean to meet broad objectives toward the goal of empowering and equipping national agriculture research system institutions (NARS institutions) for rapid development and delivery of new and improved crop varieties through efforts of regional centers of innovation for crop improvement. The goal of ILCI is to partner with national programs that will identify, develop, pilot, and transfer appropriate tools, technologies and methods (ITMs), equipping them to deliver increased genetic gain and new products.

Toward the goal of reaching this vision, ILCI invites researchers to submit proposals for projects of up to 3 years in duration. Projects must be led by NARS institutions in East Africa, West Africa, South Asia and/or Latin America and the Caribbean and must contribute to building long term sustainable, self-driven and effective NARS institution breeding programs. The application process will be phased, consisting of an initial Letter of Intent (LoI), followed by a co-creation phase and a final proposal submission. See below for details.

A. Available Funding

Proposed budget requests should not exceed a total request of up to \$1 million total (including indirect costs) for project periods of up to 3 years with a tentative start date of September 1, 2020. Smaller, more targeted projects with more limited budgets or shorter timelines are also acceptable. All budget requests should be commensurate with the scope and proposed deliverables of the project.

B. Applicant Eligibility

Required:

This RFA will support National Agriculture Research System (NARS) institutions, as defined by FAO:

“NARS are defined, in a given country, as encompassing all institutions public or private devoting full time or partially their activities to agricultural research and committed to a national research agenda. Generally, the following categories of such institutions are identified as follows:

- (i) institutions whose mandate is to carry out research only, such as the NARS institution (National Agricultural Research System Institute);
- (ii) higher education institutions devoting their activities to teaching and research: they are the faculties of agriculture and related disciplines and the faculties of social sciences and economics of the universities;
- (iii) technical departments of some ministries, development agencies that carry out some adaptive research programmes; and
- (iv) NGOs and the private sector.”

- Applicant NARS must be actively involved in crop improvement research, with demonstrated variety development and mechanisms for dissemination
- Projects funded under this RFA must be led by a principal investigator (PI) based at a NARS institution from a Feed the Future target or aligned country in East Africa (Ethiopia, Kenya, Uganda, Burundi, Malawi, Mozambique, Rwanda, Somalia, South Sudan, Tanzania, Zambia, Zimbabwe), West Africa (Ghana, Mali, Niger, Nigeria, Senegal, Burkina Faso, Democratic Republic of the Congo, Guinea, Liberia, Sierra Leone), Asia (Bangladesh, Nepal, India, Burma, Cambodia, Georgia, Tajikistan) or Latin America and the Caribbean (Guatemala, Honduras, El Salvador, Belize, Costa Rica, Nicaragua, Panama, Haiti, Mexico)
- Applications must clearly define all of the product profiles for target crops (RTBs, legumes excluding peanut and soybean, sorghum and millets) the RFA will impact
- Support must be documented from NARS institution leadership (DDG/Dean level)

Priorities:

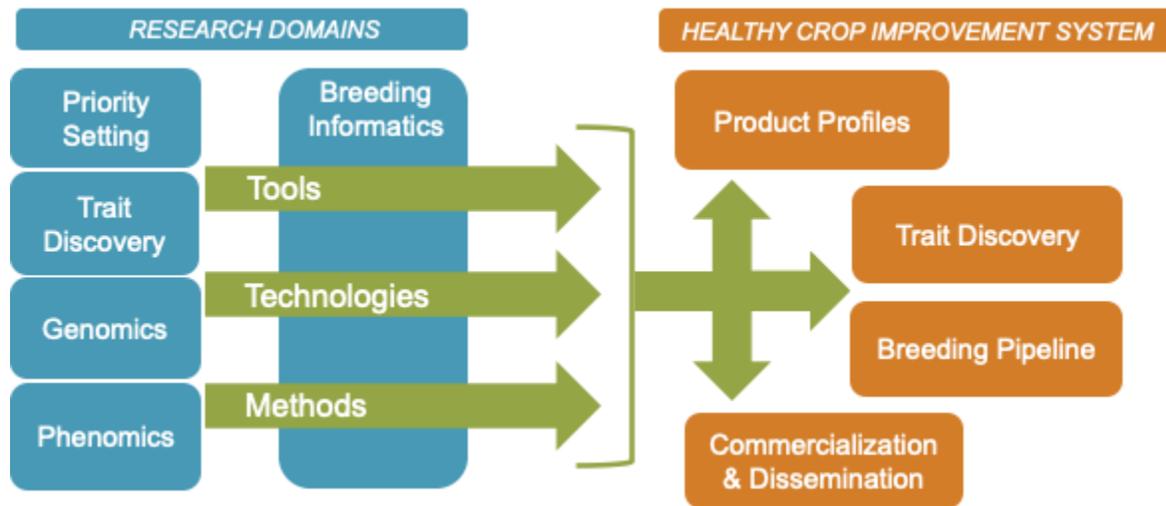
- Proposals demonstrating a track record and/or vision for TTM integration in crop improvement leading to varietal release
- Proposals including linkages to US institutions and/or with co-PIs from US minority serving institutions (MSIs; ILCI will facilitate linkages with MSIs should applicants require)
- Applications led by minority groups, women, and early career researchers
- Partnerships with other NARS institutions, universities and institutions, and CGIAR centers in target countries
- Proposals submitted by interdisciplinary groups of PIs

¹ <http://www.fao.org/3/Y4349E/y4349e05.htm>

- Proposals clearly indicating how becoming a center of innovation will increase benefits from crop improvement for women, youth, climate resilience and nutrition

C. Regional Centers of Innovation Vision

Philosophy: Our operating model and philosophy at ILCI focuses on empowering NARS institutions to pave their own path towards sustainable, climate smart, equitable and effective crop improvement programs. We believe that NARS institutions should be driving the “modernization” agenda around crop improvement to fit their impact pathways and resource base. To this end, the RFA process for CoI’s will be one of co-creation and visioning. We envision change around five domains (Box 1) to be addressed in a justified, prioritized and coordinated fashion.



NARS institution driven impact orientation: Proposals should be goal oriented towards sustainable development, articulating stated development objectives and pathways to impact, and specifying hypotheses² of alleviating bottlenecks in meeting product profiles through the identification, implementation and/or development of novel tools, technologies and breeding methodologies.

Capacity Building: Capacity building is a critical theme that must be addressed by each project. Research proposals should demonstrate capacity building plans both at the individual level and at an institutional level. ILCI will also offer targeted short-term training opportunities and sabbatical visits on research domains, specific TTMs and cross-cutting issues as appropriate.

Post-graduate training is an additional priority in capacity building activities. Proposals should outline in detail the planned training of students including the type and location of training. Both long-term (e.g., degree granting) and short-term (e.g., technical workshops) training should be outlined. Proposals should outline efforts that will be made to ensure equal opportunities for training for both women and men.

² For further background on implementing goal-directed hypothesis-driven research please reference: <https://www.gohy.org/>.

Box 1: Research Domains

Priority Setting: Product profile-based breeding strategies hold promise to boost adoption rates and social impact. The underlying assumptions are that breeding programs understand market demand, and have critically examined potential positive or negative impacts of traits on gender relations, access to and control of resources, and time use. This area of inquiry includes TTMs for scalable and robust market analysis, together with attention to issues of gender, age and social difference.

Trait Discovery: Discovery and introgression of novel traits is a critical component for delivery of Product Profiles. This area of inquiry empowers NARIs to rapidly discover and deploy novel traits, leveraging rigorous hypothesis-testing and new genomic resources. TTMs will allow NARIs to develop and test trait hypotheses that underlie Product Profiles, and will be scaled with a web application for NARIs to assess their scientific approach and to communicate to their stakeholders.

Genomics: Rapidly scoring genetic markers on plant breeding populations can now be performed at a low cost. Leveraging genomic services and bioinformatics pipelines developed for the CGIAR Excellence in Breeding Module 3 and USDA-ARS/Cornell Breeding Insight project, this area of inquiry will design efficient assays that will enable deployment of markers for quality control, fingerprinting, trait introgression, marker assisted selection, multi-year genomic evaluations and genomic selection applications when appropriate.

Phenomics: Effective experimental design, data collection and management, and statistical approaches for analyses are consistently identified as bottlenecks for breeding programs. This area of inquiry will work with collaborators to establish robust experimental designs and deploy PhenoApps interfacing with BreedBase for the collection, management, and analysis of phenotypic data, with a focus on phenotyping nutritional and resilience traits. The customization of the TTMs for country, crop and trait targets will be driven by feedback loops involving programmer, breeder and consumer end-user networks.

Breeding Informatics: Real data-based simulations and optimization techniques help determine technological and methodological interventions for maximizing impact on breeding efficiency and genetic gains. Breeding pipeline optimization will be done in collaboration with Excellence in Breeding Module 2. This area of inquiry will deploy regional cloud computing hubs and web base application to support data management.

Cross cutting themes: The cross-cutting themes of gender and youth responsiveness, resilience and nutrition are a central focus of ILCI. As noted above, product profiles selected must seek to address gender and youth-based constraints, show potential for economic inclusion for women and youth, include traits to address malnutrition and increase resilience. Applicants must designate a team member with the relevant background and expertise in gender and youth inclusion, nutrition or resilience, and allocate funding for research and staff focus on these areas to demonstrate how developing, testing and adopting TTMs can have positive impacts on livelihoods in these areas.

D. Application information and process

Templates for all application materials are available at <https://ilci.piestar-rfx.com/opportunities>.

Phase 0: Q&A

We will host a webinar for potential applicants to get further information and ask questions for submission. The webinar will be held on March 19, 2020 at 9:00AM EDT. Written questions will

then be accepted until March 23, 2020. Written questions can be submitted at <https://ilci.cornell.edu/opportunities/>. [You can register for the webinar here.](#)

Phase I: Letter of Intent

The first phase will constitute [submission of a Letter of Intent \(LoI\)](#) by the applicant NARS institution, covering the following sections:

- 1) Specification of the product profile(s) that will be targeted by this investment
- 2) Articulation of the impact envisioned from release of varieties meeting the(se) product profile(s)
- 3) Brief analysis of domains of crop improvement innovation that are currently weak and a barrier to achieving the above impact. These must be mapped to the domains presented in Box 1
- 4) Clear plans for including gender, youth, resilience and nutrition into proposed work
- 5) Brief articulation of capacity and training needs
- 6) Identification of potential future partner programs in the region, as well as international partners
- 7) Supplementary material: letter of commitment from NARS institution leadership to support the ILCI engagement, including a binding statement articulating amount of in-kind and financial contributions to ILCI engagement.

LoI should be 3 pages maximum in length (excluding the cover page and supplementary materials), 11-point font and line spacing not exceeding six lines of text per vertical inch, including figures and tables.

[Applications should be submitted via Piestar](#) by 11:59 p.m. U.S. Eastern Daylight Time on April 10, 2020. Applications received after this deadline will not be considered for funding.

Phase II: Co-creation

ILCI is open to assisting applicant's craft their final proposals. Successful LoIs will be selected and informed by April 24, 2020. The successful NARS institutions will then enter a co-creation phase with ILCI until June 14, 2020 to review and refine proposal development (optimization plan, TTMs of interest, impact pathways, capacity building plans, etc.). The NARS institution will also complete a simple self-evaluation of capacity, enabling environment and resource availability for a crop improvement optimization plan. The NARS institution will be responsible for documenting and acting on points raised during the co-creation process. The NARS institution will identify key performance indicators to measure success. These indicators will be reviewed to ensure alignment with FtF or custom indicators.

Phase III: Final proposal submission

Final proposals should include the following:

1. Cover Sheet

On the template provided, the cover sheet should include: project title; the name, institution and email of the principal investigators and all senior personnel; the proposed project duration; and total funds requested.

2. Project Summary/Abstract

The summary should include an overview of the planned project goals/objectives and activities, expected outcomes and impacts, and define the relevance of the project to the goals and vision of the ILCI. This summary should be no more than one page and in non-technical language accessible to a general audience.

3. Project Narrative

The project narrative should not exceed 20 pages in length in 12-point font and line spacing not exceeding six lines of text per vertical inch, including figures and tables. The list of references cited is not counted in the project narrative, all works cited should be properly referenced.

The project narrative should include:

- a) Introduction – A clear statement of long-term goals and supporting objectives of the proposed project. Summarize the body of knowledge or past activities and accomplishments that substantiate the need for the proposed project. Include preliminary data/information pertinent to the proposed project. Will also include target product profiles.
- b) Rationale and significance – Concisely present why the NARS institution is interested in engaging with the Feed the Future Innovation Lab for Crop Improvement, expanding on the impact pathways and hypotheses articulated at the LoI stage. Describe the specific relationship of the project's objectives to the priority areas of ILCI and FtF. Show how product profiles selected address gender and youth-based constraints, show potential for economic inclusion for women and youth, include traits to address malnutrition and increase resilience.
- c) Vision for self-reliance – Include how interventions through ILCI are envisioned to build self-reliance of the NARS institution to define and deliver on development goals. A clear vision of how ILCI contributions may enhance, rather than overload or distract, the current and future activities of the center of innovation.
- d) Crop improvement optimization plan – Using the impact pathway as a departure point, include a detailed description of areas of improvement identified through the co-creation phase and gaps that have been identified for TTM development/adaptation processes. Describe TTMs tentatively identified and expected outcomes from their adoption, including how these will enable the program to attain development goals, address gender and youth-based constraints, show potential for economic inclusion for women and youth, include traits to address malnutrition and increase resilience.
- e) Project deliverables – Include a separate section for project deliverables that includes outcomes, milestones and deliverables. Must include a timeline for attainment of objectives and production of deliverables that include annual milestones with specific and measurable outcomes.
- f) Risk analysis – Describe what pitfalls may be encountered and any limitations to the proposed activities.
- g) Cross cutting issues – Include a section describing activities, team members and budget allocation to address gender, youth, nutrition and resilience issues
- h) Capacity building plans – Provide planned workshops and capacity building plans through graduate training opportunities

i) MEL plan – Identify indicators and data collection plan

4. Other Documents

Supplemental documents not included in the project narrative are required for review and must be included in the proposal submission.

- Letter of support from NARS institution leadership to pledge their commitment to financial, infrastructure and/or in-kind support to bolster crop improvement activities.
- Bibliography and references cited – This section has no page limit and should include a reference for all work cited in the proposal, listed in order in an acceptable journal format.
- Key personnel – Include Curriculum Vitae for the Principal Investigator (PI) and co-PIs. 2-page limit for each PI/co-PI.
- Partners – Include a description of partners and their role in the proposed application.
- Budget – Applications must provide a budget for each budget period for the entire duration of the proposed project. Annual and cumulative budgets are required.
- Budget justification – Present a detailed budget justification for the project duration using the provided template. Please include a statement noting any leveraged funding for the project.

E. Review Process

Recommendations for funding will be advised by a review board composed of representatives of the ILCI management entity, partner programs specializing in cross-cutting issues and MEL, the ILCI advisory committee, external experts with technical knowledge in the establishment of centers of innovation in crop improvement and research domains, and members of the international research for development community. Final approval will be made by USAID.

The review criteria will focus on vision for impact, relevance, cross-cutting issues, capacity building and feasibility.

F. Further information, questions and contacts

The awarded projects will be subcontracted from ILCI to the successful applicant's institution. The awardee is subsequently responsible for negotiating and entering into sub-award agreements with all proposed partner institutions and for reporting all program accomplishments and reports, accounting of budgets and expenditures to ILCI.

Questions regarding the information and priority areas in this RFA should be directed to the RFA query link (<https://ilci.cornell.edu/opportunities/>). ILCI will continually update and post responses to key questions on the ILCI website (ilci.cornell.edu).