

**REQUEST FOR APPLICATIONS – Pilot Program:
Tipping Points**

Definitions of terms used in this RFA

Food System: a system that integrates production, processing, and consumption of food within a region.

Context/background

Health is inextricably linked to food and the environment, where environment consists of all aspects of a community including housing, education, the economy, and many other factors. Throughout the US many communities exist where disproportionate segments of the population are affected by chronic diseases, food insecurity, and poverty, largely caused by inequities within different components of a community or region. Governments from the local to federal level, philanthropic foundations, and local community partners have targeted specific components within communities or regions to elicit change. While these efforts have had significant impact, they are often disconnected from one another, missing opportunities that take into account the interdependent relationships between components of these complex and dynamic communities and regions.

The food system is an integral part of a community/region and is often targeted for change due to its direct connection to health and the economy. The food system itself consists of multiple interdependent parts that influence one another including access, quality, and affordability of food, that ultimately lead to changes in behavior. Broadly, these components can drastically impact and be impacted by vital parts of the community including the economy, health, and education. Across the US there are many communities with interventions that attempt to drive change to more equitable systems that promote local economies and improve health disparities at a population level. In many communities, even communities with a plethora of interventions that have similar overarching goals, these interventions operate independently of one another. And while each of these interventions do drive change, their potential to sustainably transform the system can be lost when interventions are designed and evaluated outside the context of an interconnected system. The Foundation for Food and Agriculture Research (FFAR) aims to sustainably transform food systems to better promote health, equity, and economic opportunities by increasing our fundamental understanding of these systems.

FFAR aims to build on the investments already made that target food systems within communities and regions. This RFA attempts to leverage the knowledge gained through these investments to increase our understanding of the complexities within a community or regional food system. The insights gained from these interventions and understanding their

Key Dates

Letter of Intent (LOI) Receipt: July 21, 2017, 12:00 pm ET

LOI Deadline: September 13, 2017, 5:00 pm ET

LOI is required

LOI Notification: September 27, 2017

Full Proposal Application Receipt: September 27, 2017, 12 pm EST
(only open to applicants invited to submit a full proposal)

Full Proposal Deadline: November 8, 2017

Award Announcement: Winter 2017/2018

Anticipated Project Start Date: February 2018

interdependence on each other can lead to sustainable solutions that promote health and increase economic opportunities. Through this program, FFAR aims to better understand the complexities of the food system, how components of the food system influence one another, which interventions work best in specific environments, and how they can be changed or combined to optimize their impact on the food system and overall community health and the economy. Dynamic and systems models provide the capacity to evaluate complex scenarios and outcomes that arise from interactions between individual components of a system, potentially uncovering new functions of these components.

What we are looking for

This Request for Applications (RFA) encourages applications for developing and testing existing approaches in conjunction with computational and mathematical approaches to deepen our understanding of the complex relationship between the food system, health, and the environment. Projects funded in response to this RFA will examine multiple food-system interventions and environmental factors to address how components of a system function within the context of their environment and the collective behaviors that arise from individual elements or parts of the food system working together to alleviate food insecurity and increase health outcomes. Often, properties associated with certain interventions are actually properties of the relationships and interactions between interventions and their environment. The ultimate goal of this RFA is to encourage food system level transformations that lead to positive health outcomes and increases economic opportunities within a community.

To accomplish the goals of this program, we encourage applicants to build transdisciplinary teams within their communities. Minimally, teams should include:

- Members from local non-profits already working within the local food system
- Members with expertise in behavioral or social sciences as well as in computational and systems modeling (computer and data science, mathematics, engineering, or other systems sciences)

Applications should demonstrate bridge-building between organizations working within the local food system and across scientific disciplines.

This RFA also encourages larger and more integrative projects focusing on the modeling of multiple interventions throughout the food system. Models help explain observations, understand system dynamics, illuminate uncertainties, offer options for interventions, set boundaries of parameters and outcomes, and identify new questions. These are tangible results of applying mathematical and computational modeling. Applicants **must use** real, empirical data and **may use** synthetic data or a combination of both to meet the aims of the proposed project. Model testing and validation are highly encouraged.

Program Requirements

FFAR is interested in mathematical and computational systems that model dynamic relationships between individual interventions (one another) in the context of local food systems and the environment. As part of a successful proposal, applicants must include:

- **Coordination of Efforts**

Applicants **must** focus on communities/regions with existing interventions, whether these interventions are facilitated by one or multiple organizations. These organizations must already be embedded within the community/region with an understanding of the community/region and their needs.

If they exist, applicants must describe existing networks that will facilitate collaboration among the multiple organizations involved in this effort. If they do not exist, applicants must describe how such networks will be developed to facilitate collaboration. In addition, the complexity of the problem will require a multidisciplinary team consisting of the groups that facilitate the interventions, public health researchers, mathematicians, and computer scientists.

- **Data collection, tools, and standardization**

Ideally, applicants will utilize existing data for the initial modeling process when this data exists. We anticipate there will be additional data needs to inform the modeling efforts. Applicants must propose a plan for anticipated additional data collection needs and the tools that will be used/developed to collect this data.

It is our intention that each successful applicant to this program will share insights regarding data collection and tool development with one another, in addition to developing shared measurements and standards with one another where appropriate.

- **Modeling**

Successful applications **must** include systems modeling that integrates multiple factors throughout the food system to increase our understanding of how interventions and factors within the community impact food security and overall health. Although no specific mathematical and computational modeling method is advocated for in this RFA, a modular approach to developing models that allow separate modules to be integrated is of high interest.

Sustainable transformations of communities that give rise to a more equitable food system is complex and involves components outside the food system. Eventually these models may include other important aspects of vibrant and thriving communities, such as housing, the economy, etc. These models will be starting points that help us understand the dynamic relationship between these different components through time, increasing our understanding of how to facilitate real and lasting change.

Types of activities we will not consider

- Stand-alone coordination or planning grants
- Projects whose sole purpose is to collect and analyze original data.

Funds can be requested for the purposes listed above within the larger context and goal of building and evaluating theories or models or the development, implementation, and evaluation of shared resources.

Eligibility

- The Foundation for Food and Agriculture Research welcomes applications from all U.S. institutions of Higher Education, non-profit and for-profit organizations, government-affiliated researchers, and domestic organizations.
- Any individual(s) with the skills, knowledge, and resources necessary to carry out the proposed research as the Program Director(s)/Principal Investigator(s) (PD(s)/PI(s)) is invited to work with his/her organization to develop an application for support.
- This funding opportunity aims to build on existing efforts within a community. However, computational modeling efforts should not be duplicative of other efforts. The proposed project must build upon existing research and activities already occurring within a community/region, and applicants must leverage at least \$750,000 worth of funding already being spent on existing activities. Applicants must clearly articulate what funding provided through the Tipping Points RFA will support.

Award Information

- Anticipated Project duration: 36-60 months
- Total Amount for this opportunity: Total funds allocated for this program is \$4 million from FFAR to be matched by \$4 million of matching funds from non-federal sources. Applicants will be asked to provide matching support for their application, up to \$1 million, and can suggest potential partners for matching support as part of their LOI to leverage existing resources already being spent in selected communities/regions.
- Estimated Number of Awards: FFAR anticipates funding 4 regions/communities, depending on a number of factors included in the quality of successful proposals, and will provide up to \$1 million of FFAR funds for each region. FFAR reserves the right to negotiate all or none of the applications received for funding consideration under this opportunity. Applicants are advised not to interpret the maximum allowable time and funding under this award as a suggestion that they should expand their anticipated work and budget to this level. The budget must be reasonable and commensurate with the proposed work. Reasonable budgets clearly work in the favor of the applicant.

FFAR allows indirect costs up to ten percent (10%) of the total funds requested from FFAR, and up to ten percent (10%) of the matching support. FFAR's indirect cost allotment is not an indirect cost rate applied to the total modified direct costs but instead it is an overall allotment from the award to be used for indirect costs by the institution. First determine what your total budget is for each year, then allot 10% of what you are requesting from

FFAR and 10% of the match to be used for indirect cost. 90% of the project cost must go directly to the project. No part of your indirect cost can be offered as a match. Unrecovered indirect cost, defined as the difference between an award recipient's federally negotiated indirect cost rate and FFAR's ten percent (10%) indirect cost allotment, MUST NOT be offered and will not be accepted as a match contribution.

- Anticipated Award Date: Winter 2017/2018

Application Components

Letter of Intent

1. Required

- Contact Information on
 - The applicant (applying organization)
 - Principal Investigator
 - Authorized Signing Official
 - Grant/Contract Administrator (if different from ASO)
- Proposed Title
- Participating organizations
- Proposed project overview (up to 1000-word limit)
- Project objectives and relevance to RFA (up to 300-word limit)
- Anticipated outcomes or outputs (up to 250-word limit)

Full Proposal

1. Required

- Project Title
- Proposed Total Budget
- Budget Justification
- Key Personnel
- Project Personnel involved in other projects being submitted to FFAR
- Project Summary (up to 500-word limit)
- Project Description (up to 6,000-word limit)
 - **Introduction**
 - A description of how the project is relevant to the goals of this RFA
 - A summary of the knowledge and efforts that have laid the groundwork for this project, including any relevant preliminary work or data that has informed the development of the project.
 - A description of the potential impact the project may have in our understanding of food system interventions and their ability to transform food systems.
 - **Approach**
 - A statement of goals and supporting objectives for the proposed project.
 - A detailed account of the procedures or methodology you will use to achieve the goals and supporting objectives. The account must have enough resolution for a

panel of experts to judge the merit of the project. All application information is treated as confidential. The account should include:

- Proposed project activities described sequentially.
- Techniques to be used, including, but not limited to:
 - Technical plan (approach) for achieving the proposed model. Models can generate new insights, and do not merely recapitulate the data used to build them. In the Model Credibility Plan, investigators are required to describe the methods and metrics that can help establish confidence in the model's predictive capabilities for the intended domain of use.
 - Data used to develop the model must be identified and appropriately justified. Parameter estimation and model validation should be based on experimental and/or observational data as appropriate. The creation of standard datasets is strongly encouraged.
 - Investigators should clearly describe the model architecture and highlight aspects of the architecture which will facilitate future model sharing. Models must be designed so that components or modules within the models are clearly documented and can be independently and explicitly reproduced by and shared with other modelers as appropriate and consistent with achieving the goals of this program.
- Stakeholder involvement in the development of the approach
- This RFA encourages highly interactive partnerships that strongly integrate diverse expertise to further increase the impact of models in the broader research and policy community.
- A description of anticipated risks and how you will mitigate them.
- How data will be analyzed or interpreted
- Plan to communicate results or amplify outcomes to stakeholder audiences.
 - Successful applicants will communicate with other funded applicants to promote model sharing and scientific collaboration as appropriate and consistent with achieving the goals of this program. Funded applicants will be strongly encouraged to employ standardized ontologies and languages for model representation where appropriate.
- **Annual Project timeline**
 - A project timetable in tabular form. At minimum applicants should include annual goals and objectives to be used to evaluate annual progress reports. If applicable, include periods beyond the grant funding to demonstrate impact and longevity of the work.
- **Data Management Plan** (up to 2,000-word limit). Applicants must describe the plans for data management. The Data Management Plan may include:

- Types of data, software, and other materials to be produced in the course of the project.
- Standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies).
- Policies and provisions for re-use, re-distribution, and the production of derivatives
- Plans for archiving data, samples, and other research products, and for preservation of access to them.
- **Model Credibility Plan** (500-word limit). Applicants must outline strategies and metrics for evaluating the validity of the model. The credibility assessment methods and metrics used may be both qualitative and/or quantitative and should be accessible for use by a third party. This plan should demonstrate why the methods and metrics are appropriate to establish confidence in the model.
- **References Cited.** If there are no references cited, a statement to that effect should be included in this section of the application. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, the website address also should be identified. Applicants must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the application. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the Project Description.
- **Organization Assurances**
 - Research involving human subjects
 - Research involving vertebrate animals
 - Research involving Recombinant DNA
 - Research Involving National Security implications
 - Research involving hazardous materials
 - Research involving human fetal tissue
 - Research involving NEPA review
- **Attachments**
 - a. Required Attachments
 - Budget Form
 - Existing Resources Worksheet
 - PI and Key Personnel Biosketch: Three-page limit per individual listed as PI or key personnel in the project. Include link to download Biosketch Instructions
 - Current and Pending Support Form: Complete for everyone listed as PI or Key personnel on the project
 - Data Management Plan
 - Letters of Support: Applicants must provide letters of institutional, collaborator, or stakeholder support for the proposed project. Please combine all letters of support into a single PDF document before uploading as an attachment.
 - Model Credibility Plan

- b. Optional attachments to support project description - this section should not be used to circumvent the page limit for the Project Description section.
 - o Graphics, Figures, Equations, and Tables (5 page limit) - The textbox for the Project Description does not support equations, tables, graphics, and figures. Applicants may upload a PDF document with graphics, figures, tables, or a list of equations to support the Project Description. Refer to RFA for word limit.

Application Submission Guidelines

Applications and LOIs must be submitted through FFAR's online application receipt system (<https://proposalcentral.altum.com/>). Only applications and LOIs submitted through this portal will be considered eligible for evaluation. If you are a new user, register for an account by clicking the orange "Create One Now" button. You will receive a confirmation email to sign-in to your account. Once you log in, search through the list of institutions to see if there is an institutional profile for your organization. If there is no institutional profile, ask your Grants & Contracts Department or Office of Sponsored Programs to register your organization. Once the organization's profile is registered and saved, the PI can select their institution and complete his/her personal profile. To access FFAR's open funding opportunities, click the "Grant Opportunities" button on the top right corner of your screen, then on the top left corner of the screen, pull down the "Filter by Grant Maker" button and scroll down to select FFAR. Select the opportunity you would like to apply for by clicking the "Apply Now" button. The Principal Investigator may give access to others who will carry out part of, or participate in the proposed project, in Section Three of the online application. To invite individuals to participate in a proposal, they must already have an account in the system. By submitting an application, the applicant acknowledges and accept the terms and conditions of the RFA.

Application Review Process

- **Letter of Intent (LOI) Review**

All submitted LOI applications will go through an internal review process to ensure that the proposed project is relevant to the RFA and suitable to FFAR's mission. Only the most innovative and cutting-edge projects with significant potential to advance our understanding of food system dynamics will be invited to submit a full proposal application. Applicants should expect to be notified of whether they are invited or not invited to submit a full proposal by the deadline listed in the RFA. The LOI is binding, therefore, only applicants who submitted a LOI and were invited can submit a full proposal application.

- **Full Proposal Review**

Submitted full proposals will undergo further review using a two-stage peer review process: (1) External Peer Review, and (2) FFAR Advisory Council review. In the first stage, applications will be evaluated by an independent, external peer review panel of scientific experts using the review criteria posted in the RFA. In the second stage, applications judged to be most meritorious by the peer review panels will be evaluated and recommended for funding by the FFAR Advisory Council based on comparisons with applications from the same cycle and FFAR's program priorities. All reviewers are required to read and acknowledge acceptance of FFAR's [Conflict of Interest Policy](#) and [Non-Disclosure](#)

[Agreement](#). We make reasonable efforts to ensure that proposals are not assigned to reviewers with a real or apparent conflict with the applicant or project personnel. Reviewers with a conflict of interests are recused from evaluating or participating in the discussions of proposals with which the reviewer has a conflict. Each stage of the review is conducted confidentially, and as such, FFAR is responsible for protecting the confidentiality of the contents of the applications.

Applications recommended for funding by the Advisory Council will go to the Scientific Program Director and FFAR's Executive Director to consider program priorities, portfolio balance across programs, and available funding.

Review Criteria

Full proposals are evaluated based on scored primary review criteria and unscored secondary review criteria. The bullets under each criterion may serve as a guideline to applicants when writing their proposals, and as a guideline to reviewers on what to consider when judging proposals. The bullets are illustrative and not intended to be comprehensive. Reviewers will evaluate and score each primary criterion and subsequently assign a global score that reflects an overall assessment of the application. The overall assessment will not be an average score of the individual criterions; rather, it will reflect the reviewers' overall impression of the application. Evaluation of the scientific merit of each application is within the sole discretion of the peer reviewers and they may raise additional factors to consider that are not covered in the bullets for each criterion.

- **Primary Review Criteria**

Reviewers use the primary review criteria to evaluate the scientific merit and potential impact of the proposed project. Concerns with any of these criteria potentially indicate a major flaw in the significance and/or design of the proposed work.

1. Relevance and Innovation (25%)

- Is the proposal relevant to the RFA and innovative?
- Does the project address known gaps and avoid duplication of current and past efforts?
- To what extent does the proposed project suggest and explore creative, original, or potentially transformative concepts, approaches, or methodologies?
- If the project is not successful, what are the potential benefits or lessons learned?
- Does the program leverage and complement existing resources within the community?

2. Technical Merit and Feasibility (25%)

- Are the overall program approach, strategy, and design feasible and clearly described and supported by established theory and practice?
- Does the proposal include a data management plan and model credibility plan that is appropriate for the scope of work?

- Is the budget commensurate with the proposed work?
 - Are the proposed objectives and activities feasible within the duration of the award?
 - Are possible barriers addressed and approaches for overcoming them proposed?
 - Are the target population and methods to reach the target population clearly described?
3. Qualifications of Personnel and Project Team (20% Weight)
- How well qualified is the individual, team, or organization to conduct the proposed activities?
 - Is there tangible evidence of institutional commitment from the applicant organization and its collaborators/partners?
 - Does the described role of each collaborating organization make it clear that each organization adds value to the project and is committed to working together to implement the project?
 - Does the proposal demonstrate that project personnel would have adequate resources (for example, institutional support, appropriate infrastructure, equipment and/or other physical resources) to conduct the proposed research or associated activities?
 - Will the project benefit from unique features of the work environment or collaborative arrangements?
4. Dissemination and Scalability /Expansion (15%)
- Are plans for dissemination of the project's results and outcomes clearly described?
 - Does the applicant clearly describe how the project lends itself to dissemination to or adaptation and application by other communities and/or organizations in the U.S.?
5. Outcomes Evaluation (15%)
- Are the proposed outcome measures appropriate for the activities proposed, and are the expected outcomes significant?
 - Does the application provide a clear and appropriate plan for data collection and management, statistical analyses, and interpretation of results to follow, measure, and report on the project's outcomes?
 - How important are the potential impacts if this project is funded and successful?
- **Secondary Review Criteria**
Secondary criteria contribute to the global score assigned to the application. Concerns with these criteria potentially question the feasibility of the proposed research. Examples of secondary review criteria are budget, protections for human and animal subjects, and previous project performance.

Award Administration

Selection Notice

Following the full proposal review, the principal investigator and the authorized organization representative listed on the project will be officially notified by email whether (1) the proposal has been selected for funding pending contract negotiations, or (2) the proposal has not been selected for funding. If a proposal is selected for funding, the Foundation for food and Agriculture Research reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to, matching funds, or other budget information. Potential grantees are free to accept or reject the Grant Agreement as offered.

Award Notice

FFAR notifies applicants of whether they are selected for funding through email. The notice does not constitute an award or obligate funding from FFAR until there is a fully executed Grant Agreement.

Grant Period(s)

Upon receipt of the Grant Agreement, the potential grantee should note the Effective Date and the Expiration Date. Grantees may only use FFAR funds on project expenditures on or after the Effective Date of the Grant. Charging expenditures to the grant prior to the effective date is strictly prohibited. Likewise, grantees may not use FFAR funds after the Expiration Date except to satisfy obligations to pay allowable project costs committed on or before that date. The expiration date is the last day of a month.

Once the Grant Agreement is fully executed, the Effective Date cannot be changed. The Expiration Date may be changed with a written approval of a no-cost extension request by FFAR. If a no-cost-extension request is approved, FFAR will issue an amendment to the Grant Agreement.

If the grantee requires additional time beyond the Grant Period and the established Expiration Date to assure adequate completion of the original scope of work within the funds already made available, the grantee may request a one-time no-cost extension of up to 6 months. The request must be submitted to FFAR at least thirty (30) days prior to the Expiration Date of the grant. The request must explain the need for the extension and include an estimate of the unobligated funds remaining and a plan for their use. This one-time extension will not be approved merely for using the unexpended funds.

Post-award Management

Reporting Requirements

After a grant is conferred, the grantee shall provide an annual financial report to FFAR showing grant expenditures to date. The grantee shall also provide semi-annual progress reports to FFAR showing activities being carried out under the grant, including but not limited to project accomplishments to date and grant expenditures. Within 30 days of completion of all grant activities, the grantee shall provide a final progress report. The final progress report should address the original objectives of the project as identified in the proposal, describe any changes in objectives, describe the final project accomplishments, and include a final project accounting of all grant funds.

Scientific Integrity

FFAR's ability to pursue its mission to build unique partnerships to support innovative science addressing today's food and agriculture challenges depends on the integrity of the science on which it relies. A fundamental purpose of FFAR is to facilitate the advancement of knowledge and the application of the science to address challenges relevant to the FFAR's mission. All FFAR grants must be conducted with the highest standards of scientific integrity.

Grant Terms and Conditions

The Foundation for Food and Agriculture Research expects applicants to have reviewed the Grant Agreement prior to applying to ensure that the applicants are aware of the applicable terms under which the grant is offered. FFAR will only entertain potential modifications to the Grant Agreement under the most exceptional circumstances. Successful applicants are strongly encouraged to sign the Grant Agreement as presented.

Requirement To Demonstrate Matching Funds

The match share requirement is a one-to-one FFAR-to-awardee ratio. Therefore, for every dollar FFAR awards, the grantee or a third-party institution must contribute a newly dedicated, non-federal dollar towards the project costs. For example, if a proposal requests two hundred thousand dollars (\$200,000) of FFAR funds, the applicant or a third-party must be able to come up with an additional two hundred thousand dollars (\$200,000) to match the request, for a grand total project budget of four hundred thousand dollars (\$400,000).

The applicant agrees to identify and certify matching funds annually prior to disbursement of award funds. At least fifty (50%) of the required matching funds must be a cash match, while the remainder can be in-kind match. The match share is intended to supplement, not supplant existing funding for the principal investigator (PI). The applicant will abide by FFAR's Matching Guidelines to meet FFAR's matching requirements. To constitute a valid match, all matching funds on a FFAR grant must be expended during the grant period.

Contact Information

1. Technical Help Contact
 - i. Hours of Operation: 8:30am – 5:00pm Eastern Time (Monday – Friday)
 - ii. Telephone: 800-875-2562 (Toll-free U.S. and Canada)
+1-703-964-5840 (Direct Dial International)
 - iii. Email: pcsupport@altum.com

2. Scientific and Grants Questions Contact
 - i. Email: grants@foundationfar.org

We only accept scientific or programmatic, and grants inquiries by email. We strive to respond to inquiries within two business days, but our response time depends on the volume of questions we receive and the complexity of the questions asked. Please note that we do not monitor this mailbox on evenings, weekends, or federal holidays.

