



**Broad Agency Announcement**

**Insect Allies**

**BIOLOGICAL TECHNOLOGIES OFFICE**

**HR001117S0002**

**November 1, 2016**

**TABLE OF CONTENTS**

**PART I: OVERVIEW INFORMATION .....3**

**PART II: FULL TEXT OF ANNOUNCEMENT .....4**

- 1. Funding Opportunity Description.....4**
  - 1.1. PROGRAM OVERVIEW .....4**
  - 1.2. PROGRAM STRUCTURE .....5**
  - 1.3. PROGRAM OBJECTIVES.....6**
  - 1.4. PROGRAM MILESTONES and DELIVERABLES.....8**
  - 1.5. GENERAL REQUIREMENTS .....12**
- 2. Award Information.....13**
  - 2.1. General award information .....13**
  - 2.2. Fundamental Research .....14**
- 3. Eligibility Information.....15**
  - 3.1. ELIGIBLE APPLICANTS .....15**
  - 3.2. Organizational Conflicts of Interest .....16**
  - 3.3. COST SHARING/MATCHING .....17**
- 4. Application and Submission Information .....17**
  - 4.1. ADDRESS TO REQUEST APPLICATION PACKAGE .....17**
  - 4.2. CONTENT AND FORM OF APPLICATION SUBMISSION.....17**
  - 4.3. FUNDING RESTRICTIONS .....29**
- 5. Application Review Information .....29**
  - 5.1. EVALUATION CRITERIA .....29**
  - 5.2. REVIEW OF PROPOSALS.....30**
- 6. Award Administration Information .....31**
  - 6.1. SELECTION NOTICES.....31**
  - 6.2. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS .....31**
  - 6.3. REPORTING.....32**
  - 6.4. ELECTRONIC SYSTEMS .....32**
- 7. Agency Contacts.....33**
- 8. Other Information .....33**
- 9. APPENDIX 1 – Volume II checklist and sample templates .....35**

## PART I: OVERVIEW INFORMATION

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Biological Technologies Office
- **Funding Opportunity Title** – Insect Allies
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – HR001117S0002
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates**
  - Posting Date – **November 1, 2016**
  - Proposal Abstract Due Date – **December 6, 2016**
  - Proposal Due Date/BAA Closing Date – **January 17, 2017**
  - Any other relevant date(s) – Proposers Day, November 18, 2016  
<https://fbo.gov/spg/ODA/DARPA/CMO/DARPA-SN-16-73/listing.html>
- **Concise description of the funding opportunity:** The Insect Allies program will develop a platform technology for delivering enhanced crop traits within a single growing season by delivering a modified virus to target plants by a mobile insect vector.
- **Anticipated individual awards** - Multiple awards are anticipated.
- **Types of instruments that may be awarded** - Procurement contract, cooperative agreement, or other transaction.
- **Agency contact**
  - Points of Contact  
The BAA Coordinator for this effort may be reached at:  
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## **PART II: FULL TEXT OF ANNOUNCEMENT**

### **1. Funding Opportunity Description**

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 and 2 CFR § 200.203. Any resultant award negotiations will follow all pertinent law and regulation, and any negotiations and/or awards for procurement contracts will use procedures under FAR 15.4, Contract Pricing, as specified in the BAA.

Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals that enable expression of crop traits within a single growing season at scale by delivering a modified virus to target plants by a mobile insect vector; thereby addressing national security challenges in agriculture domestically and abroad. Respondents to this BAA must propose novel approaches to modify an insect-transmitted virus to confer traits to a crop of agricultural value by means of a host-specific vector.

#### **1.1. PROGRAM OVERVIEW**

Agricultural food production is a fundamental human activity that contributes to defense preparedness, societal stability, and economic vitality. While traditional plant breeding and genetic modification have been successful at increasing yield, all crop development pipelines currently in use are constrained by common plant life history bottlenecks, including growth and reproduction. As a result, existing crop enhancement technologies require decades of development. This timeline is not sufficient to respond to future agricultural challenges as they are occurring; therefore, a new rapid and highly-specific crop-development solution is needed.

New tools for targeted gene editing (e.g., the CRISPR/Cas9 system) already allow swift adult plant transformation in the laboratory; however, the size of crop fields presents a major challenge for delivery of these technologies at scale. Overhead sprays, currently the most straightforward dispersal platform in agriculture, are unable to support large scale delivery of plant transformation technology as they require both water and irrigation infrastructure—resources that are not always present—and have loss rates that would preclude their sustained use in the delivery of relatively high cost biologics. An alternative approach to the delivery problem can be found in mobile insects that specifically associate with the target plant species and could efficiently deliver the genetic alteration agent.

Plant viruses hold significant promise as carriers of gene editing circuitry and are a natural partner for an insect-transmitted delivery platform. Viral mechanisms have already been used to investigate and modify plant phenotypes—for example, virus-induced gene silencing (VIGS) technique for impeding plant gene expression—and most (> 70%) of the > 1000 known viruses affecting plants in their mature states are naturally transmitted by insects. By leveraging the natural ability of insect vectors to deliver viruses with high host plant specificity, and combining this capability with advances in gene editing, rapid enhancement of mature plants in the field can be achieved over large areas and without the need for industrial infrastructure.

## 1.2. PROGRAM STRUCTURE

Insect Allies will encompass a four year effort organized into three consecutive phases (Table 1) lasting 12, 18, and 18 months, respectively. During Phase 1, performer teams will demonstrate successful delivery of a transgene to individual plants via an insect-mediated virus, and the subsequent expression of that transgene within the plant. Phase 2 will focus on modification of the components of the delivery platform (virus, insect, and plant) for improved transmission and expression of genetic material, so as to provide a robust and controllable system that can be scaled within a closed monoculture inside a greenhouse. During Phase 3, alteration of plant traits will be developed, likely using a multiple gene approach. In Phase 3, the transfer and expression of genes, resulting in the target plant's gain of function, will be demonstrated in contained complex environments with multiple plant species present where only target plants are modified. Intermediate and end-of-phase milestones as well as a demonstration (see Table 1) will be included in each phase to evaluate progress throughout the program.

The Insect Allies program consists of three Technical Areas (TAs) to be addressed concurrently. Proposers must address all three TAs and must meet key milestones throughout the period of performance.

- TA1: Engineered plant virus (“Virus”)
- TA2: Viral delivery by insect vector (“Insect”)
- TA3: Rapid mature plant transformation (“Plant”)

A high-level overview of the structure of the Insect Allies program that highlights relationships between the three Technical Areas and gives general objectives across the three phases along with brief descriptions of the end-of-phase demonstrations is given in Table 1. A more detailed discussion of program objectives, metrics and milestones, and demonstrations is provided in Sections 1.3 and 1.4.

**Table 1: Insect Allies Program Structure and Objectives – Overview**

<b>Tech Areas</b>	<b>Phase 1 12 Months</b>	<b>Phase 2 18 Months</b>	<b>Phase 3 18 Months</b>
<b>1-Virus</b>	Select viruses specific to target crop and insect vector that can deliver a single transgene	Increase gene load and maintain stability of multiple transgenes	Deliver genes for enhanced plant trait(s) via one or more viral vectors
<b>2-Insect</b>	Identify and select insect vector appropriate for target crop and viruses	Reduce strain mortality, improve transmission qualities, and incorporate a single conditional lethal safeguard	Improve dispersal and host specificity for release in larger enclosure, and incorporate multi-factor conditional lethal safeguard(s)
<b>3-Plant</b>	Identify and select crop with established virus and insect vector interactions for transformation of mature plants	Stably transform multiple mature plants within a closed monoculture with multiple ( $\geq 3$ ) genes	Stably transform multiple mature plants in a complex, multi-species contained community for enhanced trait(s)
<b>End-of-Phase Demo</b>	<i>Demonstration One:</i> Phase 1 Integrated Laboratory Demo	<i>Demonstration Two:</i> Phase 2 Integrated Small Greenhouse Demo	<i>Demonstration Three:</i> Phase 3 Integrated Large Greenhouse Demo

### 1.3. PROGRAM OBJECTIVES

The Insect Allies program will develop integrated systems of modified viral agents that can be delivered to specific plants of interest via insects and can confer traits for combating biological and environmental threats. Agricultural threats of concern to the Department of Defense (DoD) include, but are not limited to, invasive pest or pathogen species, accidental or intended release of natural or engineered harmful biological agents, severe water (drought, flooding) or heat stress, and prolonged exposure to toxic compounds. Proposals aimed at addressing these issues in annual, perennial, and subsistence plant systems of high food biosecurity importance are especially encouraged. Proposers must fully describe approaches to address each of the three Technical Areas (TA) described below. Proposers must also include details about how they will complete integrated platform demonstrations at 12, 30, and 48 month intervals, as detailed below. These demonstrations are intended to assess integration across all three Technical Areas and show manipulation of viral pathology, insect fitness, and mature plant transformation. Proposals that do not address all three Technical Areas and demonstrations will be considered non-conforming to the BAA.

Descriptions of the three Technical Areas are given below. The complete list of associated metrics, milestones, and deliverables can be found in Section 1.4.

Technical Area 1 (TA1): Engineered plant virus (Virus)

Selection, modification, and optimization of a plant virus capable of transforming individual mature plants.

Proposers must identify 5-10 virus candidates that may be carried by a competent insect vector (TA2) and can singly or together deliver the genetic material required for plant gain of function (TA3). Proposers must clearly pre-identify viruses that are candidates for the proposed work. Both currently known insect-transmitted viruses and novel viruses identified through genomic or transcriptomic analysis will be acceptable.

In Phase 1, prior to the demonstration of successful delivery of a single transgene (see Demonstrations in Section 1.4), performers must demonstrate stability of the genetically-modified plant virus (and transgene) within the plant for > 2 weeks. By Phase 2, viruses must support an increased gene load and maintain stability of multiple genes to allow for large scale multi-gene delivery, and to ultimately provide the plants' gain of function in Phase 3. Gene regulatory elements essential to the gene delivery strategy must be indicated in all phases, whether or not a single virus strain or multi-virus with serial delivery strategy will be used. If necessary, the genetic architecture of the virus should be optimized to increase stability and maximize insect transmissibility while limiting plant virulence. It is expected that performers will establish and investigate those factors that play important roles in transmission in the chosen system – for example, protein interactions between virus/insect and virus/plant – and provide quantitative assessments that can be used to guide modification and improve transmission. Off-target effects must be assessed and minimized.

Technical Area 2 (TA2): Viral delivery by insect vector (Insect)

Selection, modification, and optimization of an insect vector capable of infecting a target mature plant.

Proposers must identify and use insect vectors to deliver modified viruses (TA1) to target plants. Insect characteristics that play a role in viral delivery and that can be modified to improve delivery (as needed) must be identified; these characteristics include, but are not limited to, insect survival, longevity, dispersal ability, pathogen vulnerability, and plant feeding behavior. Proposers may include additional metrics specific to their chosen system, as appropriate, to demonstrate effective virus delivery. (For example, if a sap sucking insect is proposed, stylet performance and physical changes with virus-insect tissue association should also be examined.) Proposers are encouraged to identify and select insect vectors that are especially robust to the challenge of efficient viral transmission, and may propose methods to increase vector competency (e.g., microbiome manipulation). Dispersal behavior will be integral to successful vector design and will be assessed as part of the evaluation in Phase 3; specifically, insects should cover and feed on 50% of the target plants within a defined space in less than 48 hours with a level of feeding on non-target plants that does not sustain viral transmission.

Insect vector species must be amenable to being produced in large enough numbers to be released into large greenhouses that serve as a simulated field environments. Proposers should

detail plans, permits, equipment, and facilities available and/or needed for contained/caged insect rearing (e.g., environmental chambers and greenhouse facilities).

Insect vectors must also have integrated conditional lethal safeguard(s) to demonstrate the capacity to manage insect populations that are released into a controlled environment. Effectiveness of conditional lethal systems must be quantitatively assessed and must be used as part of the greenhouse demonstrations at the end of Phases 2 and 3. Multi-factor conditional lethal systems are required by the end of Phase 2. Innovative approaches to limiting insect survival are especially encouraged. For example, conditional lethal systems could include, but are not limited to, those triggered through antibiotic presence/absence, temperature extremes, and light presence/absence. Conditional lethal systems will be considered adequately successful with no insect survival after 2 weeks following release and no propagation of progeny.

#### Technical Area Three (TA3): Rapid mature plant transformation (Plant)

Performer teams must select a target crop species and identify the genes required for enhancement of traits of mature plants within a single growing season. Target crop must be an important annual, perennial, or subsistence plant. Crops of U.S. importance (including maize, wheat, potato, tree fruits, etc.), global agricultural importance (including rice, cassava, cowpea, tree fruits, etc.), and other plants of similar importance are encouraged. Proposals to work solely with model plants (e.g., *Arabidopsis*, *Nicotiana*, etc.), will not be considered responsive to this BAA. Once the target plant species is identified, performers must clearly establish, with reference to quantitatively-assessed plant characteristics, the plant growth stage that is sufficiently "mature" to allow useful (e.g., from the perspective of crop yield) benchmarks, and demonstrate successful transformation only on plants that have reached that stage.

Chosen trait(s) should reflect current or potential future major disruptions to agricultural production, such as drought, flood, excess salinity, and pathogen and pest outbreaks. The genetic basis of traits could rely on a single or multi-gene pathway alteration. Proposals should outline a scientifically justified progression from genetic modification in immature plant tissue (current state of the art) to mature plants.

For the goal of modifying multiple mature plants of the same target species, performer teams are to provide the quantitative and crop-system specific metric(s) by which success will be gauged. Plants should display gene insertion and expression in all phases. In Phase 2 performers must demonstrate the entrance of  $\geq 3$  transgenes in series, in multiple mature plants in a monoculture setting. Phase 3 will be performed in a complex plant community containing  $\geq 20$  different plant species in order to demonstrate the species specificity of the genome modification strategy. Transgene incorporation into non-target plant genomes must be below the limit of detection.

#### **1.4. PROGRAM MILESTONES AND DELIVERABLES**

In order for the Government to evaluate the effectiveness of a proposed solution in achieving the stated program objectives, proposers should note that the Government hereby promulgates the following program metrics that may serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. Although the following program metrics are specified, proposers should note that the Government has identified these



goals with the intention of bounding the scope of effort, while affording the maximum flexibility, creativity, and innovation in proposing solutions to the stated problem.

Milestones and deliverables, with the appropriate metrics for each Technical Area are given below in Tables 1–4. Proposals should cite the specific quantitative and qualitative success criteria that the proposed effort will achieve. Proposals should define additional milestones and metrics, as well as any additional tasks needed to accomplish deliverables.

**Table 2: Technical Area 1 – Engineered Plant Virus**

PHASE	OBJECTIVES	MILESTONES	METRICS
1	Produce a virus candidate library	Prospect viruses and provide rationale for virus choice(s)	5-10 candidate virus genomes sequenced and annotated
	Propagate virus(es)	Demonstrate successful virus propagation in culture	Demonstrate ability to manipulate growth in culture at significant levels
	Stabilize virus within the plant	Demonstrate stability of the genetically-modified plant virus within the plant	No significant viral transgene loss for $\geq 2$ weeks
	Genetically modify plant virus	Quantify expression of single transgene	Significant transgene expression above control
2	Edit viral genome	Identify relevant promoter, terminator, spacer, and other important gene regulatory elements	Functioning viral multigene construct(s)
	Deliver multi-transgene capability	Quantify expression of $\geq 3$ transgenes	Significant transgene(s) expression above control
3	Deliver and express systemic transgene(s)	Quantify the presence of multiple transgenes using relative gene expression of plant tissues	Significant transgene(s) expression above control

**Table 3: Technical Area 2 - Viral Delivery by Insect Vectors**

PHASE	OBJECTIVES	MILESTONES	METRICS
1	Domesticate and select insect strains	Demonstrate insect culturing fitness data of selected strains with significantly reduced mortality	Mortality rates < 30%
	Modulate and monitor transmission capability	Demonstrate molecular characteristics of vector competency; increase viral acquisition and transmission rates	Viral acquisition rate > 75% Transmission rate > 10%
2	Increase modulation of transmission capability at scale	Demonstrate molecular characteristics of vector competency; reduced mortality rates, increased transmission rates	Mortality rates < 10% Transmission rate > 30% Small greenhouse context (proposer defined)
	Implement single safeguard	Demonstrate elements of an effective (two-week window) single conditional lethal	Single conditional lethal (proposer defined) No significant survival
3	Deliver virus community-wide	Demonstrate delivery to majority of target plants in less than 48 hours with no measurable off-target effects	> 50% target prevalence No transgene expression in non-target plants Large greenhouse context (proposer defined)
	Implement multi-safeguard	Demonstrate elements of an effective multiple conditional lethal with no significant insect survival after 2 weeks	Multi-conditional lethal (proposer defined) 0% survival after a user defined time where 50% of non-transformed insects survive

**Table 4: Technical Area 3 - Rapid Mature Plant Transformation**

PHASE	OBJECTIVES	MILESTONES	METRICS
1	Modify mature plant tissue	Quantify characteristics of mature plant tissue and transgene expression	Transgene expression 50% above control in mature tissue type
2	Validate modification parameters in monoculture	Quantify expression of transgenes	≥ 3 delivered transgenes expression above control
3	Demonstrate enhanced trait in target plants within community context	Quantify expression of transgenes with no off-target effects in community	> 50% of targeted plant population is successfully genetically modified within ≤ 1 week with no detection of off-target effects to other community organisms

## DEMONSTRATIONS

All three Technical Areas are to be conducted concurrently and integrated for end-of-phase demonstrations. Demonstrations will build in complexity and scale over the course of the program. For the Phase 1 demonstration, proposers must demonstrate successful delivery of a single transgene (e.g., by expression of a reporter molecule) to a mature target plant using a single insect and modified viral strain at a laboratory scale. The Phase 2 demonstration will take place in a small greenhouse environment containing a single plant monoculture, and will require a demonstration of successful delivery of 3 genes by one or more insect-mediated viruses. The Phase 3 demonstration will take place in a large and complex greenhouse environment containing multiple plant species, and will require a demonstration of trait enhancement in the target plant species with no measurable off-target effects.

Additional details on the end-of-phase demonstrations are given below.

### (i) Phase 1 demonstration (at 12 months/end of Phase 1, laboratory scale)

Proposers must demonstrate, with appropriate biological replicates, quantification and controls, successful delivery of a single transgene (e.g., by expression of a reporter molecule) to a single mature target plant using a single insect and modified viral strain. The virus should be altered to express at least a one sustainable transgene in the target plant, which will be delivered by a single insect vector. This must be performed in a small arena, as defined by the performer team to accommodate the selected crop, with a single plant and a single insect. The single plant arena experiments should be repeated to perform the required number of biological replicates. Insects are not required to demonstrate orientation or dispersal for this demonstration.

### (ii) Phase 2 demonstration (at 30 months/end of Phase 2, small greenhouse scale)

Proposers must demonstrate the Insect Allies approach in a small greenhouse where the scale of the demonstration has increased from single plant experiments in the Phase 1 Demonstration to a

community level experiment. Additional variables include: 1) multiple individual plants, 2) insect vectors that can disperse, and 3) a greater spatial extent (i.e. larger greenhouse). Instead of a single gene,  $\geq 3$  transgenes must be evident at the end of Phase 2 building towards plant modification of multi gene traits.

(iii) Phase 3 demonstration (at 48 months/end of phase 3, large greenhouse scale)

Proposers must demonstrate the use of a large number of independently mobile insects to deliver transgenes, via one or more modified viruses, to mature target plants in a large and complex greenhouse approximating the natural environment. The demonstration environment must be provided by the proposing team and described in detail; in particular, the characteristics that will allow for comparison with the natural environment. The greenhouse must contain  $\geq 20$  species of non-target plants and a distribution of additional non-target species of insects consistent with the natural environment being approximated. The set of additional insects must include  $\geq 5$  arthropod species, with at least one being a natural enemy of the chosen insect vector and another being a competitive species. Fifty percent of target plants should express at least one plant enhancing trait (chosen by the proposing team) within one week. The Phase 3 demonstration should reflect insect plant specificity and other TA-specific milestones and metrics given above.

## **1.5. GENERAL REQUIREMENTS**

Regardless of the specific approach, proposers to the Insect Allies program must address each of the following features:

### **Proposing teams**

It is expected that proposals will involve multidisciplinary teams that include expertise from multiple complementary disciplines (e.g., virology, vector entomology, and plant biotechnology).

Specific content, communications, networking, and team formation are the sole responsibility of the proposer teams. Proposer teams must submit a single, integrated proposal led by a single Program Integrator/Manager or prime contractor that addresses all program phases and TAs, as applicable.

DARPA will hold a Proposers Day (see Section 8 below) to facilitate the formation of proposer teams with the expertise necessary to meet the goals of the program and enable sharing of information among interested proposers through [fbo.gov](http://fbo.gov) and the Proposers Day registration website.

### **Data Sharing**

DARPA anticipates that a large amount of data will be generated under this program by each performer and that the analyses and validation will be strengthened by compiling and integrating information across all performers. Performers are strongly encouraged to establish the appropriate agreements to enable collaboration and data sharing. DARPA encourages sharing of

pre-existing data including those generated through funding by other sources, although this is not a requirement of the program.

### **Biocontainment and Biosafety**

The Insect Allies program seeks to provide a flexible and rapidly deployable platform for modification of mature plants at scale. This program is inspired by natural biological events that cause characteristics to be transferred within a plant community. While these traits are often negative, Insect Allies proposes to use this system to deliver positive characteristics to plants as they are challenged by harmful events. This program will be conducted in containment and will not support any proposals that include uncontained environmental release of such organisms. DARPA anticipates that large, physically contained cage field trials of engineered organisms may be appropriate for some of the experimental demonstrations of Insect Allies capabilities. Such trials should only be undertaken when they are necessary to demonstrate the efficacy and stability of tools and countermeasures, and after laboratory and computer modeling experiments have shown promising results, but are no longer adequate to advance the science.

### **Other Requirements**

Performers are expected to attend semi-annual program reviews to provide scientific and technical updates to the selected performers on the Insect Allies program on progress towards their milestones and scientific goals, and to summarize outstanding challenges and limitations that must still be overcome to achieve the overarching goals of the program.

## **2. Award Information**

### **2.1. GENERAL AWARD INFORMATION**

Multiple awards are possible. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if it is later determined to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work, as applicable. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications (see Section 6.2.4, “Representations and Certifications”). The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions, and/or cost/price within a reasonable time, and the proposer fails to timely provide requested additional information. Proposals identified for negotiation may result in a procurement contract,

cooperative agreement, or other transaction, depending upon the nature of the work proposed, the required degree of interaction between parties, whether or not the research is classified as Fundamental Research, and other factors.

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult [www.darpa.mil/work-with-us/contract-management#OtherTransactions](http://www.darpa.mil/work-with-us/contract-management#OtherTransactions).

In all cases, the Government contracting officer shall have sole discretion to select award instrument type, regardless of instrument type proposed, and to negotiate all instrument terms and conditions with selectees. DARPA will apply publication or other restrictions, as necessary, if it determines that the research resulting from the proposed effort will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program. For more information on publication restrictions, see the section below on Fundamental Research.

## **2.2. FUNDAMENTAL RESEARCH**

It is DoD policy that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. National Security Decision Directive (NSDD) 189 defines fundamental research as follows:

‘Fundamental research’ means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.

As of the date of publication of this BAA, the Government expects that program goals as described herein may be met by proposers intending to perform fundamental research and does not anticipate applying publication restrictions of any kind to individual awards for fundamental research that may result from this BAA. Notwithstanding this statement of expectation, the Government is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as fundamental research under the foregoing definition, still meet the BAA criteria for submissions. If proposals are selected for award that offer other than a fundamental research solution, the Government will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award.

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to select award instrument type and to negotiate all instrument terms and conditions with selectees. Appropriate clauses will be included in resultant awards for non-fundamental research to prescribe

publication requirements and other restrictions, as appropriate. This clause can be found at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa).

For certain research projects, it may be possible that although the research being performed by the awardee is restricted research, a subawardee may be conducting fundamental research. In those cases, it is the awardee's responsibility to explain in their proposal why its subawardee's effort is fundamental research

### **3. Eligibility Information**

#### **3.1. ELIGIBLE APPLICANTS**

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA.

##### **3.1.1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities**

###### **FFRDCs**

FFRDCs are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity unless they meet the following conditions: (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter on official letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and their compliance with the associated FFRDC sponsor agreement's terms and conditions. This information is required for FFRDCs proposing to be awardees or subawardees.

###### **Government Entities**

Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations.

###### **Authority and Eligibility**

At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. § 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

### **3.1.2. Non-U.S. Organizations**

Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

## **3.2. ORGANIZATIONAL CONFLICTS OF INTEREST**

### FAR 9.5 Requirements

In accordance with FAR 9.5, proposers are required to identify and disclose all facts relevant to potential OCIs involving the proposer's organization and *any* proposed team member (subawardee, consultant). Under this Section, the proposer is responsible for providing this disclosure with each proposal submitted to the BAA. The disclosure must include the proposer's, and as applicable, proposed team member's OCI mitigation plan. The OCI mitigation plan must include a description of the actions the proposer has taken, or intends to take, to prevent the existence of conflicting roles that might bias the proposer's judgment and to prevent the proposer from having unfair competitive advantage. The OCI mitigation plan will specifically discuss the disclosed OCI in the context of each of the OCI limitations outlined in FAR 9.505-1 through FAR 9.505-4.

### Agency Supplemental OCI Policy

In addition, DARPA has a supplemental OCI policy that prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. Therefore, as part of the FAR 9.5 disclosure requirement above, a proposer must affirm whether the proposer or *any* proposed team member (subawardee, consultant) is providing SETA, A&AS, or similar support to any DARPA office(s) under: (a) a current award or subaward; or (b) a past award or subaward that ended within one calendar year prior to the proposal's submission date.

If SETA, A&AS, or similar support is being or was provided to any DARPA office(s), the proposal must include:

- The name of the DARPA office receiving the support;
- The prime contract number;
- Identification of proposed team member (subawardee, consultant) providing the support; and
- An OCI mitigation plan in accordance with FAR 9.5.

### Government Procedures

In accordance with FAR 9.503, 9.504 and 9.506, the Government will evaluate OCI mitigation plans to avoid, neutralize or mitigate potential OCI issues before award and to determine whether it is in the Government's interest to grant a waiver. The Government will only evaluate OCI mitigation plans for proposals that are determined selectable under the BAA evaluation criteria and funding availability.

The Government may require proposers to provide additional information to assist the Government in evaluating the proposer's OCI mitigation plan.



If the Government determines that a proposer failed to fully disclose an OCI; or failed to provide the affirmation of DARPA support as described above; or failed to reasonably provide additional information requested by the Government to assist in evaluating the proposer's OCI mitigation plan, the Government may reject the proposal and withdraw it from consideration for award.

### **3.3. COST SHARING/MATCHING**

Cost sharing is not required; however, it will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument. Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

For more information on potential cost sharing requirements for Other Transactions for Prototype, see <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>

## **4. Application and Submission Information**

### **4.1. ADDRESS TO REQUEST APPLICATION PACKAGE**

This announcement, any attachments, and any references to external websites herein constitute the total solicitation. If proposers cannot access the referenced material posted in the announcement found at <http://www.darpa.mil>, contact the administrative contact listed herein.

### **4.2. CONTENT AND FORM OF APPLICATION SUBMISSION**

All submissions, including abstracts and proposals must be written in English with type not smaller than 12 point font. Smaller font may be used for figures, tables, and charts. Copies of all documents submitted must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title/proposal short title.

The typical proposal should express a consolidated effort in support all three technical areas and phases. Proposals for a single technical area will not be accepted.

#### **4.2.1. Proposal Abstract Format**

Proposers are highly encouraged to submit an abstract in advance of a proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. DARPA will respond to abstracts providing feedback and indicating whether, after preliminary review, there is interest within BTO for the proposed work. DARPA will attempt to reply within 30 calendar days of receipt. Proposals may be submitted irrespective of comments or feedback received in response to the abstract. Proposals are reviewed without regard to feedback given as a result of abstract review. For (abstract and) proposal submission dates, see Part I., Overview Information. Submissions received after these dates and times may not be reviewed.

The abstract is a concise version of the proposal comprising a maximum of 8 pages including all figures, tables, and charts. The (optional) submission letter is not included in the page count. All pages shall be formatted for printing on 8-1/2 by 11 inch paper with font size not smaller than 12 point. Smaller font sizes may be used for figures, tables, and charts.

Submissions must be written in English.

The page limit does NOT include:

1. Official transmittal letter (optional);
2. Cover sheet;
3. Executive summary slide;
4. Resumes; and,
5. Bibliography (optional).

Abstracts must include the following components:

**A. Cover Sheet (LABELED “PROPOSAL ABSTRACT”):**

1. BAA number HR001117S0002;
2. Lead organization (prime contractor);
3. Other team members/subcontractors (if applicable);
4. Proposal Abstract title;
5. Technical point of contact (Team Program Integrator/Manager or Principle Investigator) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
6. Administrative point of contract (Contracting Officer) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
7. Estimated cost; and
8. Estimated period of performance

**B. Executive Summary:** Clearly describe what is being proposed and what difference it will make (qualitatively and quantitatively), including brief answers to the following questions:

1. What is the proposed work attempting to accomplish or do?
2. How is it done today? And what are the limitations?
3. What is innovative in your approach and how does it compare to SOA?
4. What are the key technical challenges in your approach and how do you plan to overcome these?
5. Who will care and what will the impact be if you are successful?
6. How much will it cost and how long will it take?

**C. Executive Summary Slides (does not count towards page limit):** Provide a summary in PowerPoint that effectively and succinctly conveys the information requested in the slide template provided as **Attachment 1** to the BAA posted at <https://www.fbo.gov>. Use of this template is required.

**D. Technical Plan:** It is expected that all three Technical Areas will be addressed by a team. Therefore, all Technical Areas need to be addressed in the proposal and a plan should be summarized for accomplishing the program technical goals. Outline and

address all technical challenges inherent in the approach and possible solutions for overcoming potential problems. In addition:

1. Identify the plant of interest and demonstrate a knowledge of the current state of the art for genetic modification within this cropping system.
2. Detail the virus, insect vector, and gene editing platform that will be utilized in this system.
3. Identify anticipated on target effects and how they will be monitored and measured.
4. Describe how the Insect Allies system will be tested and demonstrated in line with proposed phases.
5. Detail the approach to identifying, monitoring, and measuring off-target effects and provide an outline for the containment of the genetic editors and target species during development and testing.
6. Propose appropriate and sufficient qualitative and quantitative metrics and milestones at intervals no greater than 6 months to demonstrate progress and a brief plan for their accomplishment.

**E. Management and Capabilities:** It is expected that proposals will involve multidisciplinary teams that include expertise from multiple complementary disciplines (e.g., entomology, plant pathology, plant genomics, plant physiology, and synthetic biology). Provide a brief summary of expertise of the team, including subcontractors and key personnel.

A principal investigator for each of the project's technical areas will need to be identified and must have a background commensurate with the subject area being led. Provide a description of the team's organization including how the technical areas will run congruently and will be integrated for the end of phase demonstrations. All teams should identify a Program Integrator/Manager to lead and coordinate the effort between the principal investigators of each technical area. The program Integrator/Manager can be a principal investigator of a technical area or an oversight entity. The end of phase demonstration is not an event but will generate data for a future presentation that establishes the performing group's capabilities. There will be a presentation of team accomplishments to the other performing teams and the government at the end of phase PI meeting.

Include a description of the team's organization including roles and responsibilities. Team member descriptions should address the Technical Plan and delineate individuals to avoid duplication of efforts. Teams should describe the time and percent effort divisions for each member participating across multiple TAs. Describe the organizational experience in this area and existing intellectual property required to complete the project at a basic (non-technical) level.

Describe any specialized facilities to be used as part of the project, the extent of access to these facilities, and any biological containment, biosafety, and certification requirements.

List Government-furnished materials or data assumed to be available.

**F. Cost and Schedule:** Provide a cost estimate for resources over the proposed timeline of the project, broken down by phase and major cost items (*e.g.*, labor, materials, etc.). Include cost estimates for each potential subcontractor (may be a rough order of magnitude).

**G. Resumes (do not count towards page limit):** Include resumes of key team members.

**H. Bibliography (optional, does not count towards page limit):** If desired, include a brief bibliography with links to relevant papers and reports. The bibliography should not exceed two (2) pages.

#### 4.2.2. Proposal Format

All full proposals must be in the format given below. Proposals shall consist of two volumes: 1) **Volume I, Technical and Management Proposal**, and 2) **Volume II, Cost Proposal**. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for full proposals includes all figures, tables, and charts. Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach upon which the proposal is based. Copies of not more than three (3) relevant papers may be included with the submission. The requested attachments, bibliography, attached papers, and submission letter are not included in the page counts given below. The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. **The maximum page count for Volume 1 is 40 pages.** Volume I should include the following components:

**NOTE: Non-conforming submissions that do not follow the instructions herein may be rejected without further review.**

- a. Volume I, Technical and Management Proposal

#### Section I. Administrative

B. Cover Sheet (LABELED “PROPOSAL: VOLUME I”):

1. BAA number (HR001117S0002);
2. Lead organization submitting proposal (prime contractor);
3. Type of organization, selected from among the following categories: “LARGE BUSINESS,” “SMALL DISADVANTAGED BUSINESS,” “OTHER SMALL BUSINESS,” “HBCU,” “MI,” “OTHER EDUCATIONAL,” OR “OTHER NONPROFIT”;
4. Proposer’s reference number (if any);

5. Other team members (if applicable) and type of business for each;
6. Proposal title;
7. Technical point of contact (Team Program Integrator/Manager or Principle Investigator) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
8. Administrative point of contact (Contracting Officer) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
9. Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, firm-fixed-price, cooperative agreement, other transaction, or other type (specify);
10. Place(s) and period(s) of performance ;
11. Proposal validity period;
12. Total funds requested from DARPA, and the amount of cost share (if any); AND
13. Date proposal was submitted.

Information on award instruments is available at <http://www.darpa.mil/work-with-us/contract-management>.

B. Official Transmittal Letter.

C. Executive Summary Slides: Provide a five-slide summary in PowerPoint that effectively and succinctly conveys the main objective, key innovations, expected impact, and other unique aspects of the proposed project. The slide template is provided as **Attachment 2**. Use of this template is required.

D. Program Plan Summary: Provide key proposal details already described in the project narrative of the full proposal. Brief 1-3 sentence answers to each question are required. Submit in Excel spreadsheet format **Attachment 3**.

## Section II. Detailed Proposal Information

A. Executive Summary: Provide a synopsis of the proposed project, including answers to the following questions:

- What is the proposed work attempting to accomplish or do?
- How is it done today, and what are the limitations?
- What is innovative in your approach?
- What are the key technical challenges in your approach and how do you plan to overcome these?
- Who or what will be affected and what will be the impact if the work is successful?
- How much will it cost, and how long will it take?

- B. Goals and Impact:** Clearly describe what the team is trying to achieve and the difference it will make (qualitatively and quantitatively) if successful. Describe the innovative aspects of the project in the context of existing capabilities and approaches, clearly delineating the uniqueness and benefits of this project in the context of the state of the art, alternative approaches, and other projects from the past and present. Describe how the proposed project is revolutionary and how it significantly rises above the current state of the art. Describe the deliverables associated with the proposed project and any plans to commercialize the technology, transition it to a customer, or further the work.
- C. Technical Plan:** Outline and address technical challenges inherent in the approach and possible solutions for overcoming potential problems. This section should provide appropriate measurable milestones (quantitative if possible) at intermediate stages of the program to demonstrate progress, and a plan for achieving the milestones. The technical plan should demonstrate a deep understanding of the technical challenges and present a credible (even if risky) plan to achieve the program goal. Discuss mitigation of technical risk.
- D. Management Plan:** It is expected that proposals will involve multidisciplinary teams that include expertise from multiple complementary disciplines, for example, virology, vector entomology, and plant biotechnology. Provide a summary of expertise of the team, including any subcontractors, and key personnel who will be doing the work. Resumes do not count against the proposal page count.

Identify a principal investigator for each Technical Area to be addressed by the project. It is also highly recommended that teams identify a Program Integrator/Manager to coordinate day-to-day activities, serve as a primary point-of-contact for the project, and integrate team inputs. Provide a clear description of the team's organization including an organization chart that includes, as applicable: the programmatic relationship of team members; the unique capabilities of team members; the task responsibilities of team members, the teaming strategy among the team members; and key personnel with the amount of effort to be expended by each person during each year. Provide a detailed plan for coordination including explicit guidelines for interaction among collaborators/subcontractors of the proposed effort. Include risk management approaches. Describe any formal teaming agreements that are required to execute this program. Describe existing intellectual property required to complete the project and how the team will manage these arrangements.

- E. Capabilities:** Describe organizational experience in relevant subject area(s), existing intellectual property, specialized facilities, and any Government-furnished materials or information. Discuss any work in closely related research areas and previous

accomplishments. Descriptions of any specialized facilities to be used as part of the project should include size and scale that will enable the proposed activities, the extent of access to these facilities, and any biological containment, biosafety, and certification requirements. List all permits necessary for organisms and biotechnology described in the proposal. If any relevant permits are currently in use then list the expiration date and describe the reapplication plan as it relates to the program milestones.

- F. Statement of Work (SOW):** The SOW should provide a detailed task breakdown, citing specific tasks and their connection to the interim milestones and program metrics. Each phase of the program should be separately defined. The SOW must not include proprietary information.

For each task/subtask, provide:

- A detailed description of the approach to be taken to accomplish each defined task/subtask.
- Identification of the primary organization responsible for task execution (prime contractor, subcontractor(s), consultant(s), by name).
- A measurable milestone, i.e., a deliverable, demonstration, or other event/activity that marks task completion. Include quantitative metrics.
- A definition of all deliverables (e.g., data, reports, software) to be provided to the Government in support of the proposed tasks/subtasks.

It is recommended that the SOW be developed so that each TA and Phase of the program is separately defined. Do not include any proprietary information in the SOW.

- G. Schedule and Milestones:** Provide a detailed schedule showing tasks (task name, duration, work breakdown structure element as applicable, performing organization), milestones, and the interrelationships among tasks. The task structure must be consistent with that in the SOW. Measurable milestones should be clearly articulated and defined in time relative to the start of the project.

### Section III. Additional Information (Note: Does not count towards page limit)

A resume or “biosketch” is required for key personnel.

A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission.

- a. Volume II, Cost Management Proposal (No Page Limit)

Cover Sheet (LABELED “PROPOSAL: VOLUME II”):

1. BAA number;
2. Lead Organization Submitting proposal;
3. Type of organization, selected among the following categories: “LARGE BUSINESS”, “SMALL DISADVANTAGED BUSINESS”, “OTHER SMALL BUSINESS”, “HBCU”, “MI”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”;
4. Proposer’s reference number (if any);
5. Other team members (if applicable) and type of business for each;
6. Proposal title;
7. Technical point of contact (Team Program Integrator/Manager or Principal Investigator) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
8. Administrative point of contact (Contracting Officer) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
9. Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*), cooperative agreement, or other transaction;
10. Place(s) and period(s) of performance;
11. Total proposed cost separated by basic award and option(s) (if any);
12. Name, address, and telephone number of the proposer’s cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);
13. Name, address, and telephone number of the proposer’s cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
14. Date proposal was prepared;
15. DUNS number (<http://www.dnb.com/get-a-duns-number.html>);
16. Taxpayer ID number (<https://www.irs.gov/Individuals/International-Taxpayers/Taxpayer-Identification-Numbers-TIN>);
17. CAGE code (<https://www.dlis.dla.mil/bincs/FAQ.aspx>); and
18. Proposal validity period

**Note that nonconforming proposals may be rejected without review.**

**Proposers that do not have a Cost Accounting Standards (CAS) complaint accounting system considered adequate for determining accurate costs that are negotiating a cost- type procurement contract must complete an SF 1408.** For more information on CAS compliance, see <http://www.dcaa.mil/cas.html>. To facilitate this process, proposers should complete the SF 1408 found at <http://www.gsa.gov/portal/forms/download/115778> and submit the completed form with the proposal. To complete the form, check the boxes on the second page, then provide a narrative explanation of your accounting system to supplement the checklist on page one. For more information, see [http://www.dcaa.mil/preaward\\_accounting\\_system\\_adequacy\\_checklist.html](http://www.dcaa.mil/preaward_accounting_system_adequacy_checklist.html).



The Government strongly encourages that the proposer provide a detailed cost breakdown to include:

- (1) Total program cost broken down by major cost items to include:
  - i. Direct Labor – Including individual labor categories with associated labor hours and direct labor rates. If selected for award, be prepared to submit supporting documentation to justify labor rates. (i.e., screenshots of HR databases, comparison to NIH or other web-based salary database);
  - ii. Consultants – If consultants are to be used, proposer must provide a copy of the consultant’s proposed SOW as well as a signed consultant agreement or other document which verifies the proposed loaded daily / hourly rate, hours and any other proposed consultant costs (e.g., travel);
  - iii. Indirect Costs – Including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, Fee, etc. (must show base amount and rate), if available, provide current Forward Pricing Rate Agreement or Forward Pricing Rate Proposal. If not available, provide 2 years historical data to include pool and expense costs used to generate the rates. For academia, provide DHHS or ONR negotiated rate package or, if calculated by other than a rate, provide University documentation identifying G&A and fringe costs by position;
  - iv. Travel – Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, estimated rental car and airfare costs, and prevailing per diem rates as determined by gsa.gov, etc.; Quotes must be supported by screenshots from travel websites;
  - v. Other Direct Costs – Itemized with costs including tuition remission, animal per diem rates, health insurance/fee; back-up documentation is to be submitted to support proposed costs;
  - vi. Equipment Purchases – Itemization with individual and total costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase (NOTE: For equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding), and;
  - vii. Materials – Itemization with costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase.
- (2) A summary of major program tasks by Government Fiscal Year (GFY = Oct 1 – Sep 30)
- (3) A summary of total program costs by phase and task;
- (4) A summary of projected funding requirements by month;
- (5) An itemization of any information technology (IT) purchase (including a letter stating why the proposer cannot provide the requested resources from its own funding), as defined in FAR Part 2.101;
- (6) An itemization of Subcontracts. **All subcontractor cost proposal documentation must be prepared at the same level of detail as that required of the prime.** Subcontractor proposals should include Interdivisional Work Transfer Agreements (IWTA) or evidence

of similar arrangements (an IWTA is an agreement between multiple divisions of the same organization);

- (7) The source, nature, and amount of any industry cost-sharing. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each;
- (8) Identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.);
- (9) Any Forward Pricing Rate Agreement, DHHS rate agreement, other such approved rate information, or such documentation that may assist in expediting negotiations (if available); and
- (10) Proposers with a Government acceptable accounting system who are proposing a cost-type contract, must submit the DCAA document approving the cost accounting system.

The proposer should include supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates and should include a description of the method used to estimate costs and supporting documentation. Per FAR 15.403-4, certified cost or pricing data shall be required if the proposer is seeking a procurement contract award per the referenced threshold, unless the proposer requests an exception from the requirement to submit cost or pricing data. Certified cost or pricing data” are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a cooperative agreement or other transaction.)

The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. NOTE: for IT and equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding.

All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime. The prime and subcontractor proposals should be uploaded together if possible to DARPA’s BAA Website (<https://baa.darpa.mil/>). If the subcontractor proposal contains proprietary information not releasable to the prime, the subcontractor may upload their proposal separately but identify the proposal as a subcontract proposal and provide the name and proposal title of the prime contractor. Subcontractor proposals submitted by hard copy can be submitted in a sealed envelope by the prime or directly by the subcontractor. If submitted directly by the subcontractor the subcontractor must identify the proposal as a subcontract proposal and provide the name and proposal title of the prime contractor. Subcontractors must provide the same number of hard copies and/or electronic proposals as is required of the prime contractor.

#### **4.2.3. Additional Proposal Information**

##### **Proprietary Markings**

Proposers are responsible for clearly identifying proprietary information. Submissions containing proprietary information must have the cover page and each page containing such

information clearly marked with a label such as “Proprietary” or “Company Proprietary.”  
 NOTE: “Confidential” is a classification marking used to control the dissemination of U.S. Government National Security Information as dictated in Executive Order 13526 and should not be used to identify proprietary business information.

**Unclassified Submissions**

DARPA anticipates that submissions received under this BAA will be unclassified. However, should a proposer wish to submit classified information, an *unclassified* email must be sent to the BAA mailbox requesting submission instructions from the Technical Office PSO. If a determination is made that the award instrument may result in access to classified information, a SCG and/or DD Form 254 will be issued by DARPA and attached as part of the award.

**Human Research Subjects/Animal Use**

Proposers that anticipate involving Human Research Subjects or Animal Use must comply with the approval procedures detailed at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa).

**Small Business Subcontracting Plan**

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)) and FAR 19.702(a)(1), each proposer who submits a contract proposal and includes subcontractors might be required to submit a subcontracting plan with their proposal. The plan format is outlined in FAR 19.704.

**Section 508 of the Rehabilitation Act (29 U.S.C. § 749d)/FAR 39.2**

All electronic and information technology acquired or created through this BAA must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 749d)/FAR 39.2.

**Intellectual Property**

All proposers must provide a good faith representation that the proposer either owns or possesses the appropriate licensing rights to all intellectual property that will be utilized under the proposed effort.

**For Procurement Contracts**

Proposers responding to this BAA requesting procurement contracts will need to complete the certifications at DFARS 252.227-7017. See <http://www.darpa.mil/work-with-us/additional-baa> for further information. If no restrictions are intended, the proposer should state “none.” The table below captures the requested information:

Technical Data Computer Software To be Furnished With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(NARRATIVE)	(LIST)	(LIST)	(LIST)

## **For All Non-Procurement Contracts**

Proposers responding to this BAA requesting a Cooperative Agreement, Technology Investment Agreement, or Other Transaction for Prototypes shall follow the applicable rules and regulations governing these various award instruments, but, in all cases, should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under the award instrument in question. This includes both Noncommercial Items and Commercial Items. Proposers are encouraged to use a format similar to that described in the section above. If no restrictions are intended, then the proposer should state "NONE."

## **System for Award Management (SAM) and Universal Identifier Requirements**

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, "System for Award Management" and FAR 52.204-13, "System for Award Management Maintenance" are incorporated into this BAA. See [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa) for further information.

### **4.2.4. Submission Information**

DARPA will acknowledge receipt of all submissions and assign an identifying control number that should be used in all further correspondence regarding the submission. DARPA intends to use electronic mail correspondence regarding HR001117S0002. Submissions may not be submitted by fax or e-mail; any so sent will be disregarded.

Submissions will not be returned. An electronic copy of each submission received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received by DARPA within 5 days after notification that a proposal was not selected.

For abstract and proposal submission dates, see Part I, Overview Information. Submissions received after these dates and times may not be reviewed.

Abstracts and Full Proposals sent in response to HR001117S0002 may be submitted via DARPA's BAA Website (<https://baa.darpa.mil>). Visit the website to complete the two-step registration process. Submitters will need to register for an Extranet account (via the form at the URL listed above) and wait for two separate e-mails containing a username and temporary password. After accessing the Extranet, submitters may then create an account for the DARPA BAA website (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the abstract. Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that submission process be started as early as possible.

All unclassified concepts submitted electronically through DARPA's BAA Website must be uploaded as zip files (.zip or .zipx extension). The final zip file should be no greater than 50 MB in size. Only one zip file will be accepted per submission. Classified submissions and proposals requesting assistance instruments (cooperative agreements) should NOT be submitted through DARPA's BAA Website (<https://baa.darpa.mil>), though proposers will likely still need to visit

<https://baa.darpa.mil> to register their organization (or verify an existing registration) to ensure the BAA office can verify and finalize their submission.

Technical support for BAA Website may be reached at [BAAT\\_Support@darpa.mil](mailto:BAAT_Support@darpa.mil), and is typically available during regular business hours, (9:00 AM- 5:00 PM EST Monday – Friday).

Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that submission process be started as early as possible.

**For Cooperative Agreements:**

Grants.gov Submissions: Grants.gov requires proposers to complete a one-time registration process before a proposal can be electronically submitted. First time registration can take between three business days and four weeks. For more information about registering for Grants.gov, see <http://www.darpa.mil/work-with-us/additional-baa>.

Hard-copy Submissions: Proposers electing to submit cooperative agreement proposals as hard copies must complete the SF 424 R&R form (Application for Federal Assistance,) available on the Grants.gov website [http://apply07.grants.gov/apply/forms/sample/RR\\_SF424\\_2\\_0-V2.0.pdf](http://apply07.grants.gov/apply/forms/sample/RR_SF424_2_0-V2.0.pdf)

Failure to comply with the submission procedures may result in the submission not being evaluated. DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

**4.3. FUNDING RESTRICTIONS**

Not Applicable.

**5. Application Review Information**

**5.1. EVALUATION CRITERIA**

Proposals will be evaluated using the following criteria, listed in descending order of importance: 5.1.1 Overall Scientific and Technical Merit; 5.1.2 Potential Contribution and Relevance to the DARPA Mission; 5.1.3 Proposer’s Capabilities and/or Related Experience; and 5.1.4 Cost Realism.

**5.1.1. Overall Scientific and Technical Merit**

The proposed technical approach is innovative, feasible, achievable, and complete.

The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts that are clearly defined and feasible.

### **5.1.2. Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort are relevant to the national technology base. Specifically, DARPA's mission is to make pivotal early technology investments that create or prevent strategic surprise for U.S. National Security.

### **5.1.3. Proposer's Capabilities and/or Related Experience**

The proposer's prior experience in similar efforts must clearly demonstrate an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team has the expertise to manage the cost and schedule. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

### **5.1.4. Cost Realism**

The proposed costs are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. The proposed costs are consistent with the proposer's Statement of Work and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel and any other applicable costs and the basis for the estimates).

It is expected that the effort will leverage all available relevant prior research in order to obtain the maximum benefit from the available funding. For efforts with a likelihood of commercial application, appropriate direct cost sharing may be a positive factor in the evaluation. DARPA recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies.

## **5.2. REVIEW OF PROPOSALS**

### **Review Process**

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations based on the evaluation criteria listed in Section V.A. and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals.

DARPA will conduct a scientific/technical review of each conforming proposal. Conforming proposals comply with all requirements detailed in this BAA; proposals that fail to do so may be deemed non-conforming and may be removed from consideration. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, consistent with instructions and evaluation criteria specified in the BAA herein, and availability of funding.

## **Handling of Source Selection Information**

DARPA policy is to treat all submissions as source selection information (see FAR 2.101 and 3.104), and to disclose their contents only for the purpose of evaluation. Restrictive notices notwithstanding, during the evaluation process, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA-sponsored technical research and are bound by appropriate nondisclosure agreements. Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

## **Federal Awardee Performance and Integrity Information (FAPIS)**

Per 41 U.S.C. § 2313, as implemented by FAR 9.103 and 2 CFR § 200.205, prior to making an award above the simplified acquisition threshold, DARPA is required to review and consider any information available through the designated integrity and performance system (currently FAPIS). Awardees have the opportunity to comment on any information about themselves entered in the database, and DARPA will consider any comments, along with other information in FAPIS or other systems prior to making an award.

## **6. Award Administration Information**

### **6.1. SELECTION NOTICES**

As soon as the evaluation of a proposal is complete, the proposers will be notified that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected. These official notifications will be sent via email to the Technical POC identified on the proposal coversheet.

#### **6.1.1. Proposal Abstracts**

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. If DARPA does not recommend the proposer submit a full proposal, DARPA will provide feedback to the proposer regarding the rationale for this decision. Regardless of DARPA's response to an abstract, proposers may submit a full proposal. DARPA will review all full proposals submitted using the published evaluation criteria and without regard to any comments resulting from the review of an abstract.

#### **6.1.2. Full Proposals**

As soon as the evaluation of a proposal is complete, the proposer will be notified that (1) the proposal has been selected for funding pending award negotiations, in whole or in part, or (2) the proposal has not been selected. These official notifications will be sent via e-mail to the Technical POC and/or Administrative POC identified on the proposal coversheet.

### **6.2. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS**

#### **6.2.1. Meeting and Travel Requirements**

There will be a program kickoff meeting in a location central to the performer teams (assume central US for budgeting purposes), and all key participants are required to attend. Performers

should also anticipate regular program-wide meetings and periodic site visits at the DARPA Program Manager's discretion. Proposers shall include within the content of their proposal details and costs of any travel or meetings they deem to be necessary throughout the course of the effort. Performers should anticipate at least quarterly meetings, including teleconference calls, in-person program reviews, and site visits by the DARPA Program Manager and/or Government team. For travel budgeting purposes, proposers may assume program reviews at six (6) month intervals with alternating locations in Arlington, VA and a location central to the performer team.

#### **6.2.2. FAR and DFARS Clauses**

Solicitation clauses in the FAR and DFARS relevant to procurement contracts and FAR and DFARS clauses that may be included in any resultant procurement contracts are incorporated herein and can be found at <http://www.darpa.mil/work-with-us/additional-baa>.

#### **6.2.3. Controlled Unclassified Information (CUI) on Non-DoD Information Systems**

Further information on Controlled Unclassified Information on Non-DoD Information Systems is incorporated herein can be found at <http://www.darpa.mil/work-with-us/additional-baa>.

#### **6.2.4. Representations and Certifications**

If a procurement contract is contemplated, prospective awardees will need to be registered in the SAM database prior to award and complete electronic annual representations and certifications consistent with FAR guidance at 4.1102 and 4.1201; the representations and certifications can be found at [www.sam.gov](http://www.sam.gov). Supplementary representations and certifications can be found at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa).

#### **6.2.5. Terms and Conditions**

A link to the DoD General Research Terms and Conditions for Grants and Cooperative Agreements and supplemental agency terms and conditions can be found at [www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements](http://www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements).

### **6.3. REPORTING**

The number and types of reports will be specified in the award document, but will include as a minimum monthly financial status and technical status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A phase end report containing the phase accomplishments (Phase 1 and 2) as well as the plan for the following phase (phase 2 and 3) will be required prior to entering into the next phase. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

### **6.4. ELECTRONIC SYSTEMS**



#### **6.4.1. Wide Area Work Flow (WAWF)**

Performers will be required to submit invoices for payment directly to <https://wawf.eb.mil>, unless an exception applies. Performers must register in WAWF prior to any award under this BAA.

#### **6.4.2. i-EDISON**

The award document for each proposal selected for funding will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<http://public.era.nih.gov/iedison>).

### **7. Agency Contacts**

Administrative, technical or contractual questions should be sent via e-mail to [InsectAllies@darpa.mil](mailto:InsectAllies@darpa.mil).

#### Points of Contact

The BAA Coordinator for this effort may be reached at:

[InsectAllies@darpa.mil](mailto:InsectAllies@darpa.mil).

DARPA/BTO

ATTN: HR001117S0002

675 North Randolph Street

Arlington, VA 22203-2114

### **8. Other Information**

DARPA will host a Proposers Day in support of the Insect Allies program on November 18<sup>th</sup> at the Executive Conference Center in Arlington, VA. The purpose is to provide potential proposers with information on the Insect Allies program, promote additional discussion on this topic, address questions, provide a forum to present their capabilities, and to encourage team formation.

Interested proposers are not required to attend to respond to the Insect Allies BAA, and relevant information and materials discussed at Proposers Day will be made available to all potential proposers in the form of a FAQ posed on the FBO.gov website. The event will be webcast for those who would like to participate remotely.

DARPA will not provide cost reimbursement for interested proposers in attendance.

An online registration form and various other meeting details can be found at the registration website, <http://www.sa-meetings.com/InsectAlliesProposersDay>.

To encourage team formation, interested proposers are encouraged to submit information to be shared with all potential proposers through the Proposers Day website and the FBO.gov website. This information may include contact information, relevant publications, and a slide or poster to summarize the proposer's interests.

Participants are required to register no later than **November 14, 2016 12:00 PM EDT**. This event is not open to the Press. The Proposers Day will be open to members of the public who have registered in advance for the event; there will be no onsite registration.

In-person attendance will be accepted on a first come first serve basis, subject to room restrictions. The event will be webcast for those who would like to participate remotely.

All foreign nationals, including permanent residents, must complete and submit a DARPA Form 60 “Foreign National Visit Request,” which will be provided in the registration confirmation email. Proposers Day Point of Contact: [DARPA-SN-16-73@darpa.mil](mailto:DARPA-SN-16-73@darpa.mil).

**9. APPENDIX 1 – Volume II checklist and sample templates**

## Volume II, Cost Proposal Checklist and Sample Templates

The following checklist and sample templates are provided to assist the proposer in developing a complete and responsive cost volume. Full instructions appear in Section 4.2.2 beginning on Page 22 of HR001117S0002. **This worksheet must be included with the coversheet of the Cost Proposal.**

1. Are all items from Section 4.2.2 (Volume II, Cost Proposal) of HR001117S0002 included on your Cost Proposal cover sheet?

YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

2. Does your Cost Proposal include (1) a summary cost buildup by Phase, (2) a summary cost buildup by Year, and (3) a detailed cost buildup of for each Phase that breaks out each task and shows the cost per month?

YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

3. Does your cost proposal (detailed cost buildup #3 above in item 2) show a breakdown of the major cost items listed below:

Direct Labor (Labor Categories, Hours, Rates)

YES       NO      **Appears on Page(s)** [Type text]

Indirect Costs/Rates (i.e., overhead charges, fringe benefits, G&A)

YES       NO      **Appears on Page(s)** [Type text]

Materials and/or Equipment

YES       NO      **Appears on Page(s)** [Type text]

Subcontracts/Consultants

YES       NO      **Appears on Page(s)** [Type text]

Other Direct Costs

YES       NO      **Appears on Page(s)** [Type text]

Travel

YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

4. Have you provided documentation for proposed costs related to travel, to include purpose of trips, departure and arrival destinations and sample airfare?

YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

5. Does your cost proposal include a complete itemized list of all material and equipment items to be purchased (a priced bill-of-materials (BOM))?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

6. Does your cost proposal include vendor quotes or written engineering estimates (basis of estimate) for all material and equipment with a unit price exceeding \$5000?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

7. Does your cost proposal include a clear justification for the cost of labor (written labor basis-of-estimate (BOE)) providing rationale for the labor categories and hours proposed for each task?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

8. Do you have subcontractors/consultants? If YES, continue to question 9. If NO, skip to question 13.  
 YES       NO      **Appears on Page(s)** [Type text]

9. Does your cost proposal include copies of all subcontractor/consultant technical (to include Statement of Work) and cost proposals?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

10. Do all subcontract proposals include the required summary buildup, detailed cost buildup, and supporting documentation (SOW, Bill-of-Materials, Basis-of-Estimate, Vendor Quotes, etc.)?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

11. Does your cost proposal include copies of consultant agreements, if available?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

12. If requesting a FAR-based contract, does your cost proposal include a tech/cost analysis for all proposed subcontractors?  
 YES       NO      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

13. Have all team members (prime and subcontractors) who are considered a Federally Funded Research & Development Center (FFRDC), included documentation that clearly demonstrates work is not otherwise available from the private sector AND provided a letter on letterhead from the sponsoring organization citing the specific authority establishing their eligibility to propose to government solicitations and compete with industry, and compliance with the associated FFRDC sponsor agreement and terms and conditions.

**YES**       **NO**      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

14. Does your proposal include a response regarding Organizational Conflicts of Interest?

**YES**       **NO**      **Appears on Page(s)** [Type text]

If reply is “No”, please explain:

15. Does your proposal include a completed Data Rights Assertions table/certification?

**YES**       **NO**      **Appears on Page(s)** [Type text]

If reply is “No”, please explain: