



# DEPARTMENT OF PESTICIDE REGULATION RESEARCH GRANTS PROGRAM 2023 SUPPLEMENTAL GUIDANCE DOCUMENTS

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## RESEARCH GRANTS PROPOSAL APPLICATION OVERVIEW

### I. GETTING STARTED WITH YOUR PEST MANAGEMENT GRANT PROPOSAL APPLICATION

Here are some tips and recommendations to help you get started with your Proposal Application:

- Carefully review the [Solicitation](#).
- Review the *Considerations for Developing Your Proposal Application* section of this document (Section II) for additional information and/or considerations that will aid you in creating a complete Proposal.
- Familiarize yourself with the *Ranking Considerations for Reviewers* section of the [Solicitation](#) to identify the criteria that will guide DPR staff and Pest Management Advisory Committee

(PMAC) members when reviewing Proposal Applications and placing Proposal Applications in rank order.

- Complete all mandatory documents, and any desired optional documents, and submit them with the [Proposal Application](#).
- Please contact the Research Grants Program Lead, Jordan Weibel, with any additional questions you may have by email to [DPRpmGrants.Solicitation@cdpr.ca.gov](mailto:DPRpmGrants.Solicitation@cdpr.ca.gov).

## II. CONSIDERATIONS FOR DEVELOPING YOUR PROPOSAL APPLICATION

The following additional information and/or consideration points may assist you in developing a complete and competitive Proposal.

### 1. **Proposals must be a good fit to the funding priority stated in the Solicitation.**

DPR is soliciting Research Grant Proposal Applications that seek to develop methods or practices that reduce risks associated with pesticides of high regulatory concern, and/or that are considered high-risk, which can be incorporated into an Integrated Pest Management (IPM) system in agricultural, urban, or wildland settings. Examples of projects that may contribute to an IPM system include but are not limited to: refining decision-making for pest management; evaluating alternatives for replacement of high-risk materials; enhancing integration of pest management practices; improving application technologies; increasing cost effectiveness of reduced-risk practices; and/or using modeling or meta-analyses to advance IPM.

Successful applications will provide strong evidence of high-risk or high concern pesticide usage and support for the project's potential to reduce or eliminate this usage. In addition, successful applications typically include economic analyses of the proposed IPM tools or practices to demonstrate their utility. The most successful Research Grant projects are those that can serve as a model for similar situations and have a high potential for wide adoption.

The project must focus primarily on research. Projects primarily pursuing IPM outreach and/or implementation should apply to DPR's [Alliance Grants Program](#).

### 2. **The project's design and methods must be clearly stated in sufficient detail for reviewers to evaluate their feasibility and the likelihood of successful implementation.**

Descriptions of key elements of the experimental design and methods should be clear and concise. We recommend including the optional experimental design and methods illustrative graphics, if appropriate.

Please note that it is not sufficient to state general methods such as "the data will be evaluated using ANOVA" or "the results will be analyzed using a randomized complete block design."

### 3. **Ensure the Budget aligns with the work being performed and is fully justified.**

Reviewers sometimes find it difficult to reconcile the amount of money being requested with the work proposed to be performed. In some cases, the amount may seem inadequate and in others overestimated. Please be clear and thorough in justifying the project's Budget in the

Budget Justification section of the Scope of Work and Budget Information and double check all of your calculations. Note that DPR cannot fund out-of-state travel.

If you need help developing your budget, please consider attending one of our virtual sessions on “Budgets and Budget Justifications.”

**4. Ensure all personnel and staff belong to the same organization as the Grantee’s Principal Investigator.**

To receive grant funds as personnel, staff must be paid through the same organization as the Principal Investigator (see the Terms and Conditions section of the Grant Agreement template for who can be a Principal Investigator). If staff cannot receive funds through the Principal Investigator’s organization, they must instead be listed as Subcontractors. Research Team members who are members of an entity submitting a budget and who will donate their time, resources, etc. in kind and will not be receiving grant funds can be listed as personnel for that entity.

**5. The proposed project must be ‘stand-alone’ even if it is a component of a larger research endeavor.**

If conducted as a component of, or in conjunction with, any other research project endeavor, the DPR-funded portion of the project must be fully able to independently achieve all Objectives and Deliverables with the amount funded under the Grant Agreement. Additionally, the project Budget should not contain funds that support activities outside of the described Scope of Work. Please note that this requirement precludes any sources of matching funding.

**6. The full text of each key cited reference (limited to a maximum of five references) supporting the Proposal’s merits, whether the reference is an unpublished report or a published paper, must be provided as a PDF document.**

Key cited documents supporting your Proposal Application are an important way to show the viability of your idea. Key cited documents that show the potential efficacy of an idea, economic feasibility, and potential value to the public can significantly strengthen a Proposal Application’s merits.

## RESEARCH GRANTS FREQUENTLY ASKED QUESTIONS

### GENERAL QUESTIONS ABOUT THE RESEARCH GRANTS PROGRAM

**1. How do Alliance Grants differ from Research Grants?**

DPR’s two grant programs comprehensively promote IPM advancement by funding both new IPM knowledge development as well as IPM knowledge-sharing and implementation. Research Grants Program funds the research and development of new IPM tools and practices while the Alliance Grants Program funds the implementation, expansion, and/or adoption of effective, proven, and affordable IPM practices at the user level. Knowledge gained from a DPR Research Grant could be a great source for an eventual Alliance Grant Proposal. If you’re struggling to decide which Program your ideas fit into best, please reference our “Research/Alliance Grant Solicitation Period Kickoff Session” virtual information session. Information on virtual sessions can be found [here](#).

**2. Can work be conducted outside the state of California?**

Yes. However, work conducted outside of California must be in California-like conditions and the project must benefit Californians.

**3. Can multiple applications for different projects be submitted?**

Yes. Principal investigators and institutions may submit multiple Proposal Applications for funding. Proposals are evaluated independently, and DPR has made multiple awards to the same Principal Investigator in a single funding cycle. However, Principal Investigators should be mindful and ensure they are capable of successfully completing the required tasks for all proposals submitted and any ongoing work consistent with DPR’s “Reasonable Efforts” Term and Condition.

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**QUESTIONS ABOUT WHO CAN APPLY**

**4. Am I eligible to apply for a Research Grant?**

All principal investigators, key personnel, subawardees, subcontractors, and consultants must meet all eligibility requirements laid out in the Eligibility Requirements section of the Solicitation.

**5. Can private entities apply?**

Yes. However, please note that all DPR Grant recipients are bound by the Terms and Conditions laid out on our website, including provisions concerning public use of data and project results. Please review all Terms and Conditions carefully before applying.

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**QUESTIONS ABOUT FUNDING PRIORITIES, FUNDING DECISIONS & SPECIFIC PROJECT TYPES**

**6. Are there any funding priorities?**

At times, funding cycles may target specific crops, regions, pesticides, or other targets for funding. If there are any funding priorities for a given year, they will be explicitly mentioned in the grant solicitation.

For examples of the variety of Research Grants DPR funds, please visit our [funded projects webpage](#).

**7. How many projects are expected to be funded?**

Project budgets may range from \$50,000 to the funding pool maximum.

The number of proposals funded varies according to many factors such as the number of proposals received, the available funding pool, and how Pest Management Advisory Committee and DPR reviewers perceive the project value to Californians. It is recommended that projects with budgets near the funding pool maximum should demonstrate a particularly compelling benefit to Californians.

**8. Are cannabis projects allowed?**

Yes, we consider all projects that develop methods or practices that reduce risks associated with pesticides of high regulatory concern, and/or that are considered high-risk, which can be incorporated into an IPM system in agricultural, urban, or wildland settings, including those related

to cannabis. Please note that projects which cannot establish a reduction in high-risk pesticide usage from a legally applied pesticide are ineligible for funding.

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## QUESTIONS ABOUT EXPERIMENTAL DESIGN & STATISTICAL ANALYSES

### 9. What types of statistical analyses are appropriate?

Accepted Experimental Design and Statistical Methods have changed dramatically over the last two decades and it is no longer acceptable practice to simply state “the experimental design is a Randomized Complete Blocks Design and the data will be analyzed using ANOVA methods.”

Generalized Linear Models and Generalized Linear Mixed Models are now the accepted statistical methods for most experiments. See “Analysis of Generalized Linear Mixed Models in the Agricultural and Natural Resources Sciences” (2012) by Gbur et. al. You are strongly urged to seek the advice of a consulting statistician at the very beginning stages of developing your application to assist you in producing an appropriate experimental design and effective statistical methods. This will help you more accurately develop your budget and staffing requirements and will help ensure that your project produces information that can support the implementation of its findings.

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## QUESTIONS RELATING TO FEDERAL OR TRIBAL ENTITIES

### 10. Do Federal or Tribal entities require any special Terms and Conditions?

Yes. Please contact [DPRpmGrants.Solicitation@cdpr.ca.gov](mailto:DPRpmGrants.Solicitation@cdpr.ca.gov) for more information.

### 11. My institution is a tribal or federal agency and cannot agree to certain Non-UC Terms and Conditions. What should I do?

Please carefully review the DPR Terms and Conditions and contact DPR at [DPRpmGrants.Solicitation@cdpr.ca.gov](mailto:DPRpmGrants.Solicitation@cdpr.ca.gov) with any questions or concerns regarding Terms and Conditions. Additionally, please check the appropriate box in the Proposal Application form noting that you have contacted DPR regarding this issue prior to submitting your proposal.

### 12. I’m a Federal or Tribal Agency applicant and must abide by a specific travel policy. What should I do?

Review the frequently asked question relating to allowable travel to identify any concerns relative to your travel policy and reach out to DPR staff to discuss specifics prior to submitting a Proposal Application.

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## QUESTIONS ABOUT WHAT CAN BE INCLUDED IN A BUDGET

### 13. Is match funding allowed?

No, the entire set of project Objectives, Tasks, and Deliverables must be completed with funds from the proposed budget. No outside funding is allowed to support project activities. However, please note that in-kind contributions are allowed. Allowed in-kind services include personnel time given to project by team members, the use of team member’s existing equipment or facilities, and donations of materials by team members.

**14. Can I Pay for Work Conducted Outside my Organization?**

Yes, but only through Subcontracts or Subawards. For more information, please review the Terms and Conditions ([UC/CSU Applicants – Exhibits C and G](#), [Non-UC/CSU Applicants – Exhibit C](#)).

**15. What purchases qualify as equipment?**

Equipment is defined as having a useful life of at least one year, having an acquisition unit cost of at least \$5,000, and purchased with grant funds. Equipment is also defined as any products, objects, machinery, apparatus, implements, or tools purchased, used, or constructed within the Grant, including those products, objects, machinery, apparatus, implements, or tools from which over thirty percent (30%) of the equipment is composed of materials purchased for the Grant.

**16. What travel is allowable?**

Only travel within the state of California is allowable. Travel costs associated with visits to sites outside of California, including scientific conference locations, are not allowed. Additionally, any travel originating or ending out of the state is not allowed.

Any travel must be included in the approved budget.

For non-UC applicants, travel and reimbursement for travel costs shall be in accordance with the California Department of Human Resources’ (CalHR) travel policy in effect as of July 1st of the fiscal year in which the Grant Agreement is executed. The CalHR travel policy is found at:

<https://www.calhr.ca.gov/employees/pages/travel-reimbursements.aspx>

Travel and reimbursement for University employee travel costs shall be in accordance with the University’s travel policy in effect as of the date the cost is incurred. The University’s travel policy is found at:

- [UC] <https://www.ucop.edu/central-travel-management/resources/index.html>
- [CSU] <http://www.calstate.policystat.com/policy/10083590/latest>

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**QUESTIONS ABOUT HOW TO COMPLETE/DEVELOP A BUDGET**

**17. How do I complete the Budget and Budget Justification?**

You may have institutional resources available for these sections – Grant offices or other administrative divisions often are helpful in drafting and revising budgets. See the Sample Research Grant Scope of Work and Budget section of this document for an example. The Alliance Grants Program Guidance document also contains a sample Scope of Work and Budget available for review.

If you have further questions, please reference our “Budgets and Budget Justifications” virtual information sessions. Information on virtual sessions can be found [here](#).

**18. Can I submit my Budget and Budget Justification in another format?**

No, Budgets and Budget Justifications must be submitted using the provided Scope of Work and Budget section in the Proposal Application and the format therein.

**19. Can I use my organization's internal software to calculate budgetary numbers?**

Yes, any software may be used to prepare the budget calculations, as long as the values are transferred to the document provided in the application materials. Note that DPR manually reconciles amounts listed in the Budget using the values provided in the Budget Justification. It is the applicant's responsibility to ensure that all values, including those obtained via internal software, can be reconciled manually using the values provided in the Budget Justification. Applicants may choose to include a copy of their budget software's outputs as an optional attachment; however, such materials cannot be used in lieu of the provided application materials.

**20. How do I complete the Task Budget in the Proposal Application?**

The Task Budget should be an estimate of how the Total Directs Cost will be allocated to each individual task. Start by listing each task in the left column of the Task Budget and inputting the Total Direct Cost of the grant at the bottom of the right column. Consider the amount of personnel, travel, materials and supplies, equipment, rent, subcontractor/subrecipient, and other direct costs that will be devoted to each task when providing estimates in the right column. As a final step, you should make sure the total costs of the individual tasks add up to the Total Direct Cost of the grant as indicated in the Composite Budget Table.

**21. How do I specify in-kind contributions in the Budget Justification?**

In-kind contributions should be specified in the applicable sections of the Budget Justification. For example, if the in-kind contribution is time and service of an individual, that should be stated in the Personnel section. If the in-kind contribution is equipment or materials and supplies, it should be stated in the relevant section.

**22. What is the MTDC?**

The MTDC is the Modified Total Direct Cost that is used to calculate the Indirect Costs associated with the grant.

**23. How do I calculate the MTDC?**

The MTDC is calculated for each year by totaling all the Direct Costs that are allowed to have associated Indirect Costs. The MTDC includes all salaries and wages, fringe benefits, materials, supplies, services, travel, consultants, and subcontracts (up to the first \$25,000 of each subcontract).

**24. Which direct costs cannot be included in the MTDC calculation?**

Certain Direct Costs are not allowed to have associated Indirect Costs and must not be included when calculating the Indirect Cost for the grant. These costs include costs associated with equipment, capital expenditures, patient care charges, tuition remission, rental costs of off-site facilities, scholarships and fellowships, and the portion of any subcontract in excess of \$25,000 cannot be included in the MTDC calculation.

**25. How are Indirect Costs calculated for Budgets involving multiple UC campuses or CSU campuses?**

In these cases, indirect costs are not calculated for individual subrecipients. Instead, the MTDC of each subrecipient is added to the main MTDC to calculate Indirect Costs. DPR suggests using a 0% Indirect Cost rate in the Subcontractor/Subawardee Budget and Budget Justifications in these situations.

For example, if the Grantee for a grant is the Regents of the University of California, and there are other UC campuses and/or UCANR listed as subcontractors or subrecipients, only the campus associated with the Principal Investigator may charge overhead on the costs attributed to the other campuses and/or UCANR. In other words, all relevant UC costs must be combined into a single amount, less Direct Costs that are not allowed to have associated Indirect Costs, and the Indirect Cost rate of 25% must be calculated on that combined amount. Indirect Costs for Budgets involving multiple UC campuses and/or UCANR must charge all Indirect Costs in the main budget. As a combined entity (Regents of the University of California), an Indirect Cost rate of 25% may be charged on non-UC/UCANR subcontracts up to the \$25,000 cap.

The Regents of the University of California are responsible for internally allocating the overhead among the various subrecipients. Applicants should refer to their UC or CSU institution to determine how Indirect Costs for subrecipients/subawardees are allocated, as this should be in accordance with UC or CSU policies.

**26. What is the Indirect Cost rate?**

This rate is the percentage of the MTDC that can be claimed as indirect costs. DPR limits the indirect costs rate to a maximum rate of 25%.

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**QUESTIONS ABOUT SUBCONTRACTS/SUBAWARDS/SUBRECIPIENTS**

**27. Can subcontracts or subawards be outside of the state of California?**

Yes. Awards, subawards, and subcontracts may all be made to recipients outside of California. As a reminder, Proposals are assessed based on their benefit to Californians.

**28. What is the difference between a subcontractor and a subrecipient?**

A subcontractor is an independent entity that will be collaborating with or providing a service to the applicant to complete the Objectives of the grant. Note that to receive grant funds as personnel, staff must be paid through the same organization as the Principal Investigator. If staff cannot receive funds through the Principal Investigator's organization, they must instead be listed as Subcontractors.

Subrecipients are a specific classification of subcontractor that applies to UC/CSU applicants only. Applicants should refer to their UC or CSU institution for guidance on whether or not a subcontractor meets the criteria of a subrecipient.

**29. If my project includes multiple subcontractors, should they each have their own line in the Budget table?**

Yes, each subcontractor must have their own line in the Budget table.

**30. Do subcontractors and subrecipients need their own Budget table and Budget Justification?**

Yes, each subcontractor and/or subrecipient will need to complete a Budget table and Budget Justification.

**31. How are subcontractors incorporated into the MTDC calculated in the main Budget?**

There is a \$25,000 total maximum limit allowed for each subcontract over the term of the grant that can be factored into the MTDC of the main budget. For each subcontractor, the total costs per



year (combined direct and indirect costs) should be entered on the respective line in the main budget table.

For example, consider a Budget with one subcontractor whose total costs per year are \$15,000 in Year 1, \$12,000 in Year 2, and \$7,500 in Year 3. In Year 1, the \$15,000 can be factored into the Year 1 main budget MTDC. In Year 2, \$10,000 can be factored into the Year 2 main budget MTDC. The \$25,000 maximum limit for this subcontractor has been reached in Year 2, so the remaining Year 2 cost of \$2,000 cannot be included in the Year 2 main budget MTDC and the Year 3 cost of \$7,500 cannot be included in the Year 3 main budget MTDC. Instead, these costs over the \$25,000 limit are Direct Costs not subject to Indirect Costs.

See table below showing how this should be shown.

Direct Cost Type	Year 1	Year 2	Year 3	Total
Subcontractor Total Direct Costs	\$15,000	\$12,000	\$7,500	\$34,500
Direct Costs That Can be Factored into the Main Budget MTDC	\$15,000	\$10,000	\$0	\$25,000
Direct Costs That Cannot be Factored into the Main Budget MTDC	\$0	\$2,000	\$7,500	\$9,500

### 32. How are Indirect Costs calculated for subcontractors?

Indirect costs for subcontractors are calculated the same as in the main Budget.

## SAMPLE RESEARCH GRANT SCOPE OF WORK AND BUDGET

To assist you in developing your Proposal Application, DPR has developed a fictional sample Scope of Work and Budget for the Research Grants Program. Please note that this sample is ONLY intended to provide a comprehensive example of a properly completed and formatted Section 3. All names are invented for this example and any similarity to an actual individual is coincidental.

This fictional, yet illustrative sample is not intended to describe DPR’s preferred grant topics or budget sizes for this 2023 Research Grant Solicitation, nor is it intended to limit creativity. For examples of the variety of Research Grants DPR funds, please visit our [funded projects webpage](#). For questions regarding the sample Scope of Work and Budget, please contact the Research Grants Program Lead, Jordan Weibel, by email at [DPRpmGrants.Solicitation@cdpr.ca.gov](mailto:DPRpmGrants.Solicitation@cdpr.ca.gov).

For an additional example of a completed Scope of Work and Budget document specific to the Alliance Grants Program, see the [2023 Alliance Grants Guidance Document](#). Please note that while these documents bear many useful similarities, some sections of each Scope of Work are specific to the Research and Alliance Grants Programs.

## **PROPOSAL APPLICATION SECTION 3: SCOPE OF WORK AND BUDGET (20 Percent Weight)**

### **Project Abstract:**

*Provide a succinct (600 characters maximum) and accurate abstract of the project, including the project purpose, priorities, scope, and grant beneficiaries. Beneficiaries include any communities, persons, or entities that benefit from this funding. This summary should be in clear language and understandable to technical and non-technical readers.*

Imidacloprid-based control of glassy-winged sharpshooters that vector the causal agent of Pierce's disease is becoming inconsistent due to increasing insecticide resistance and has been implicated in pollinator concerns. In alignment with DPR's mission of protecting human health and the environment, this project seeks to test and develop organic and biocontrol methods to control Pierce's disease in vineyards. These alternatives would benefit the California wine and table grape industries along with the Californians living in grape-growing areas.

### **Project Summary:**

*Provide a succinct (1 page maximum) and accurate description of the project. The summary should include the experimental design (controlled or observational), methods (statistical, modeling, and other), and any software that will be employed. Additionally, the summary should address the relevance of the project to the mission of the Department.*

*Xylella fastidiosa* causes Pierce's disease in grapevine and is problematic in vineyards near citrus groves because *X. fastidiosa* is vectored by glassy-winged sharpshooters (*Homalodisca vitripennis*) that feed in vineyards and reproduce in citrus groves. Current imidacloprid treatments to control glassy-winged sharpshooter populations yield mixed results because coordinated pesticide applications between vineyards and citrus groves are not always consistent and glassy-winged sharpshooters have started developing resistance. Furthermore, options to treat *X. fastidiosa* directly in infected vines do not currently exist. Therefore, this project seeks to develop a two-pronged approach for managing Pierce's disease in vineyards by controlling *X. fastidiosa* populations within grapevines and glassy-winged sharpshooter populations in nearby citrus groves.

The first objective will focus on using naturally derived antimicrobial compounds and antagonistic bacterial endophytes to control *X. fastidiosa* in grapevines. Our lab already has potential candidates from *in vitro* studies that are ready for greenhouse and field trials. In controlled greenhouse experiments, the antimicrobial compounds will be sprayed onto leaves of *X. fastidiosa*-infected grapevines, and the endophytes will colonize healthy grapevines via root uptake before introducing *X. fastidiosa* via inoculation. A larger controlled field experiment will also be conducted using grapevine microplots that are naturally infested with *X. fastidiosa*. Grapevines will be treated with either foliar-sprayed antimicrobial compounds or with soil drenches of endophytes. In all three studies, Pierce's disease symptoms and *X. fastidiosa* populations will be assessed and data will be analyzed using a

linear mixed effects model to determine the best treatment for controlling *X. fastidiosa* populations in grapevines.

The second objective will focus on controlling glassy-winged sharpshooter populations in citrus groves using parasitoid wasps. Observational studies in citrus groves will be conducted to determine how the presence or absence of understory plantings and soft scale insects contribute to maintaining robust parasitoid wasp populations. These studies will also assess parasitoid wasp coverage after dispersal by hand or by drone in groves and adjacent windbreaks. In each study, glassy-winged sharpshooter populations will also be assessed as an indirect measure of parasitoid wasp population growth and stability. Data generated will be analyzed using linear mixed effects models, and the best parasitoid wasp dispersal and population maintenance methods will be determined.

The third objective will combine the best prophylactic treatment for controlling *X. fastidiosa* in grapevines and the best parasitoid wasp dispersal and population maintenance methods in a large-scale experiment that will take place in three different locations in the Central Valley. Each location will have four field sites that consist of a vineyard and an adjacent citrus grove with natural *X. fastidiosa* and glassy-winged sharpshooter populations. Data for *X. fastidiosa* population size, Pierce's disease symptoms and spread, glassy-winged sharpshooter populations in citrus groves and vineyards, and parasitoid wasp populations in the citrus groves will be collected and analyzed using a linear mixed effects model to determine which method works best for controlling both glassy-winged sharpshooter and *X. fastidiosa* populations, ultimately leading to reduced Pierce's disease in vineyards.

The final objective involves conducting a cost-benefit analysis to determine the economic feasibility of using microbe-associated prophylactic treatments and parasitoid wasps to ultimately manage Pierce's disease in vineyards. Citrus and grape growers will be interviewed to obtain economic information on current control methods along with the cost of grape yield loss. This information will be compared to the cost of the strategies proposed in this research to determine if they are economically viable alternatives. Additionally, this objective will facilitate the dissemination of the results and conclusions of this research through presentations at Citrus and Grape Grower annual meetings and in trade journals.

**Research Team Members:**

*Provide the names, organizations, and role on the project (Principal Investigator, Key Personnel, or Non-Key Personnel) for all identified members of the Research Team. Add additional rows to the table as needed.*

<b>Name</b>	<b>Organization</b>	<b>Role on the Project</b>
Mike Rowbes	University of California	Principal Investigator (PI)
Pete Reedisch	University of California	Key Personnel
Anne Alaciss	University of California	Key Personnel
Undergraduate #1 (TBD)	University of California	Non-Key Personnel
Undergraduate #2 (TBD)	University of California	Non-Key Personnel

Akar Radge	UCANR	Co-PI, Key Personnel
Walt Zindafeld	UCANR	Key Personnel
Junior Specialist (TBD)	UCANR	Non-Key Personnel
Ben Effischal	USDA-ARS	Co-PI, Key Personnel
Karen Ferbugges	USDA-ARS	Key Personnel
Ava Aeter	AgAeronauticals Inc.	Non-Key Personnel
Emma McCannick	AgAeronauticals Inc.	Non-Key Personnel

**Goals:**

*Describe the Goals of the project in a bullet-point list. List the specific Objectives, provide Tasks to achieve the Objectives, and provide a Deliverable and Deliverable due date for every Task. DPR-required Objectives, Tasks, and Deliverables are included under Objective 1. The Grantee is required to provide project-specific Objectives, Tasks, and Deliverables following Objective 1.*

- Evaluate prophylactic treatments and delivery methods for suppressing *Xylella fastidiosa* in grapevine.
- Optimize conditions for establishing and maintaining parasitoid wasp populations to combat glassy-winged sharpshooters in citrus groves.
- Determine if an integrated pest management (IPM) system incorporating prophylactic treatments in vineyards and parasitoid wasp-mediated suppression of glassy-winged sharpshooters in citrus groves synergistically reduce the prevalence and spread of Pierce’s disease.

**Objective 1:** Conduct general grant administration and deliver a project research plan, required meetings, quarterly and annual progress reports, invoices, and a final report. ***(Do Not Modify Objective 1 and its associated Tasks. These are required for all DPR Grants.)***

**Task 1.1 Initial project meeting:** The grant manager and the Principal Investigator (PI) will meet in person or virtually within 30 days after the agreement is executed. The agenda of this meeting will be a review of the role of the PI, the project timeline, the project deliverables, and will provide an opportunity to discuss any questions regarding the objectives and tasks (administrative staff will discuss invoicing via a separate conference call).

**Deliverable:** Meeting minutes as a Microsoft Word file via email (within 30 days after meeting).

**Due Date:** Meeting within 30 days from grant execution and meeting minutes within 30 days after meeting.

**Task 1.2 Research plan:** Provide a proposed experimental design for the Department’s review and approval for each of the experiments or studies. Include detailed accounts of relevant methods and procedures, working hypotheses, working significant treatment differences that are relevant for decision makers, experimental design, choice of statistical software, treatments, sampling methods, response variables, analytical methods, treatment means comparison methods, study sites, and study site characterization.

**Deliverables:** Please provide a brief summary report as a Microsoft Word file with tables, figures, or images as needed to fully explain the research plan.

**Due Date:** Within 30 days after the agreement is executed.

**Task 1.3 Invoices:** Periodic invoices, final invoice, and invoice for the return of the ten percent retention. No funds may be requested or invoiced after 90 days from the project completion date. To meet that deadline, all project work and required deliverables including the final report must be completed and delivered to the Department by December 31, 2025.

**Deliverables:** Periodic, final, and ten percent retention invoices. Periodic invoices are required even if no expenses were incurred and, in that case, would indicate zero (\$0) expense. All invoices must use the template forms supplied by the Department.

**Due Date:** Periodic invoices must be submitted no more than once a month and no less than every three months. The final invoice and the ten percent retention invoice are due within ninety days after the project completion date.

**Task 1.4 Project quarterly update meetings:** Project update meetings will occur by the last day of every calendar quarter, in person or virtually, as requested by the grant manager or a designated representative. All key personnel needed to explain project results, problems, and special situations that are explicitly related to project deliverables must attend. The PI must notify the grant manager of meeting dates and locations at least two weeks in advance. If requested by the grant manager, meetings should occasionally include representation by the intended end-users of the research results (e.g., growers, marketing boards) for feedback and insights to improve effectiveness and usefulness of the results. The grant manager may require additional meetings as needed.

**Deliverable:** Meeting agenda as a Microsoft Word file via email (one week in advance) and meeting minutes (within 30 days after meeting).

**Due Date:** The end of every calendar quarter through September 30, 2025.

**Task 1.5 Quarterly progress reports:** Concise summaries of project activities, completed milestones, and unexpected problems or special situations are required. The reports must focus on results, problems, and special situations that are explicitly related to project deliverables and must clearly describe any potential or actual effects on the deliverables or their completion dates. The reports must also detail personnel work hours or percent time. Submit quarterly reports to grant manager.

**Deliverables:** Quarterly progress reports (using template forms supplied by the Department).

**Due Date:** The end of every calendar quarter through September 30, 2025.

**Task 1.6 Annual reports:** Detailed accounts of results to date, problems encountered, milestones achieved, and plans for the next year. The reports must focus on results, problems, milestones, and plans that are explicitly related to project deliverables and must clearly describe any potential or actual effects on the deliverables or their completion dates. Submit annual reports to grant manager.

**Deliverables:** Annual reports due June 30 of each year (except for the year the final report is due) following grant execution as a Microsoft Word file via email.

**Due Date:** Every June 30 through June 2025.

**Task 1.7 Final report draft:** Describe in detail how project goals and objectives have been fulfilled through the completion of project deliverables, summarize and evaluate project activities and accomplishments, and include recommendations for outreach and/or future research. The report must focus on how project results are explicitly related to project deliverables and must clearly describe any potential or actual effects on the deliverables. Also, include all relevant materials, documentation, and deliverables not previously submitted. The report may be submitted in the form of a publishable paper, with supplemental appendices as needed to correlate the findings in the paper with how project goals and objectives have been fulfilled through the completion of project deliverables, and to include recommendations for outreach and/or future research. Submit draft report to the grant manager.

**Deliverable:** Final report draft as a Microsoft Word file via email (security settings should be unlocked, not password protected).

**Due Date:** December 15, 2025.

**Task 1.8 Final report:** Final report, incorporating any feedback, edits, or revisions to the draft final report. Submit final report to grant manager. Final report may be published on DPR's website for review by the public.

**Deliverable:** Final report as a Microsoft Word file and high resolution files (jpeg, tiff, etc.) of all photos, figures, and illustrations included in the Final Report via email (security settings should be unlocked, not password protected).

**Due Date:** December 31, 2025.

**Task 1.9 Department presentation:** The PI or other key personnel will make a summary presentation, in person in the greater Sacramento area or virtually, during the last year of the project or the year after the project is completed. The presentation will provide information about project goals, objectives, and results. DPR retains the right to publish the presentation on DPR's website for review by the public.

**Deliverables:** Presentation with an electronic copy of the presentation provided to the grant manager via email at least three weeks in advance.

**Due Date:** Last year of the project or the year after the project is completed.

**Objective 2:** Identify the most effective prophylactic treatment and delivery method for suppression of *Xylella fastidiosa* in grapevine.

**Task 2.1 Greenhouse study to assess the effects of three different foliar-sprayed antimicrobial compounds on *Xylella fastidiosa* in grapevine:** Grapevines will be inoculated with *Xylella fastidiosa* and populations will be allowed to grow for one month. After the incubation period, three compounds that have been shown to reduce *Xylella fastidiosa* populations in laboratory settings will each be combined with a surfactant and applied to the foliar tissue. Grapevines sprayed with water + surfactant will serve as a positive control. Grapevines will be arranged using a random

block design and Pierce's disease symptoms will be quantitatively measured and tissue samples will be collected for bacterial quantification via quantitative Real-Time PCR (qRT-PCR).

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** January 31, 2024.

**Task 2.2 Greenhouse study to assess the effects of soil-introduced xylem colonizing endophytes that secrete antimicrobial compounds on *Xylella fastidiosa* in grapevine:** Grapevines will be inoculated with *Xylella fastidiosa* and populations will be allowed to grow for one month. After the incubation period, solutions of three different endophytic bacteria will be poured into the soil and allowed to colonize the grapevines for one month. Grapevines with soil receiving water only will serve as the positive control. Grapevines will be arranged using a random block design and Pierce's disease symptoms will be quantitatively measured and tissue samples will be collected for bacterial quantification via qRT-PCR.

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** January 31, 2024.

**Task 2.3 Field study to assess the effects of foliar-sprayed antimicrobial compounds and soil-introduced xylem colonizing endophytes on *Xylella fastidiosa* in naturally infected field grapevines:** The field study will use microplots of grapevines in an area with natural Pierce's disease pressure. Using a randomized block design, microplots will receive either no treatment or one of the six treatments used in the previous greenhouse studies. Prior to treatment, all grapevines will be assessed for initial Pierce's disease symptoms, and samples from five random grapevines per microplot will be used to assess initial *Xylella fastidiosa* population size, using the same methods as described in Objective 2. Following treatment, Pierce's disease symptoms and *Xylella fastidiosa* populations will be assessed for three months in the same manner.

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** January 31, 2025.

**Objective 3:** Optimization of parasitoid wasp releases and conditions for population establishment to combat glassy-winged sharpshooters in citrus groves.

**Task 3.1 Assess the effects of understory plantings and soft scale on parasitoid wasp and glassy-winged sharpshooter populations in citrus plots:** Three established citrus groves at a Central Valley agricultural station with natural glassy-winged sharpshooter and soft scale presence will be used for this study. Each grove will have four plots, each with one of the following treatments:

- 1) understory planted with Alyssum and Buckwheat and a natural soft scale population,
- 2) understory planted with Alyssum and Buckwheat and sprayed with pesticide to remove soft scale,
- 3) no understory and a natural soft scale population, or
- 4) no understory and sprayed with pesticide to remove soft scale.

Plots will be randomized, and parasitoid wasps will be released by hand in each plot. Both parasitoid and glassy-winged sharpshooter populations will be assessed from March through September.

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** January 31, 2025.

**Task 3.2 Assess parasitoid wasp and glassy-winged sharpshooter populations in citrus groves and adjacent windbreaks after hand release and drone release:** Five growers, each with two large citrus groves with windbreaks and natural glassy-winged sharpshooter populations, will be used for this study. For each site, one grove and the associated windbreaks will receive parasitoid wasp populations dispersed by hand, while the other grove and associated windbreaks will receive parasitoid wasps dispersed by drone. Dispersals will occur once at the center of the windbreak and once at the center of the grove in both March and June to coincide with predicted glassy-winged sharpshooter rearing cycles. Parasitoid wasp populations and percentage of grove with established populations will be assessed from March through September.

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** January 31, 2025.

**Objective 4:** Determine if prophylactic treatments in grapevine and suppression of glassy-winged sharpshooters by parasitoid wasps in citrus groves have a synergistic effect on the prevalence and spread of Pierce's disease.

**Task 4.1 Assess glassy-winged sharpshooter populations in citrus groves and adjacent vineyards and Pierce's disease incidence and spread after simultaneous parasitoid wasp releases and grapevine treatment:** Four field sites in each of three separate locations will each consist of a citrus orchard and an adjacent vineyard (both naturally infested by glassy-winged sharpshooter). Field sites within a location will have one of the following treatments:

- 1) the best prophylactic treatment from Objective 2 and the best dispersal and population maintenance methods from Objective 3,
- 2) the best prophylactic treatment from Objective 2 only,
- 3) the best dispersal and population maintenance methods from Objective 3, or
- 4) Neither treatment (control site).

Parasitoid wasp releases will occur in both March and June to coincide with predicted glassy-winged sharpshooter rearing cycles. The prophylactic treatments will occur once per month. Initial glassy-winged sharpshooter populations and Pierce's disease symptoms will be assessed prior to treatment. Samples and data will be collected from March through September and will include grapevine tissue samples for bacterial quantification via qRT-PCR, Pierce's disease symptoms and spread, glassy-winged sharpshooter populations in citrus groves and vineyards, and parasitoid wasp populations in the citrus groves.

**Deliverable:** Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.

**Due Date:** November 30, 2025.



**Objective 5:** Assess economic feasibility and extend project results to stakeholders.

**Task 5.1 Conduct a cost-benefit analysis to compare the economic feasibility of using microbe-associated prophylactic treatments and parasitoid wasps to manage Pierce's disease in vineyards with current control methods:** Growers of the citrus orchards and vineyards used in the previous objectives of this project will be interviewed to determine the costs associated with the chemical treatments they currently use for controlling glassy-winged sharpshooter and Pierce's disease. Costs associated with grape yield loss will also be determined. The cost-benefit analysis and all associated data will be published on a grape pest management webpage.

**Deliverable:** Report detailing the results and conclusions of the cost benefit analysis along with tables, figures, images, and statistical analyses as needed to support the findings. Final draft of the proposed additions to the grape pest management website will be provided 20 business days prior to publishing.

**Due Date:** November 30, 2025.

**Task 5.2 Outreach:** Present most recent results at Citrus and Grape Grower annual meetings.

**Deliverable:** Submission of presentation materials 20 business days prior to each meeting.

**Due Date:** April 30, 2024; April 30, 2025.

**Task 5.3 Publish results of the project in trade journals.**

**Deliverable:** Final drafts of articles to be published in trade journals will be submitted 20 business days prior to publishing date.

**Due Date:** December 15, 2025.

## Schedule of Deliverables

List all items that will be delivered to the State under the proposed Scope of Work. Include all reports, including draft reports for State review, and any other Deliverables, if requested by the State and agreed to by the Parties.

If use of any Deliverable is restricted or is anticipated to contain preexisting Intellectual Property with any restricted use, it will be clearly identified.

Unless otherwise directed by the State, the PI shall submit all Deliverables to the State Contract Project Manager.

<b>Objective</b>	<b>Task and Deliverable</b>	<b>Due Date</b>
1	1.1 Initial project meeting	30 days from grant execution
1	1.2 Research plan	30 days from grant execution
1	1.3 Invoices	Frequency: maximum monthly and minimum quarterly. Final invoice and 10% retention invoice both due within 90 days of project completion.
1	1.4 Quarterly project update meetings	Every quarter through September 30, 2025
1	1.5 Quarterly project reports	Every quarter through September 30, 2025
1	1.6 Annual reports	Every June 30 through 2025
1	1.7 Draft final report	December 15, 2025
1	1.8 Final report	December 31, 2025
1	1.9 DPR presentation	Final year of project or following year
2	2.1 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	January 31, 2024
2	2.2 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	January 31, 2024
2	2.3 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	January 31, 2025

<b>Objective</b>	<b>Task and Deliverable</b>	<b>Due Date</b>
3	3.1 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	January 31, 2025
3	3.2 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	January 31, 2025
4	4.1 Report detailing results along with tables, figures, images, and statistical analyses as needed to support the findings.	November 30, 2025
5	5.1 Report detailing the results and conclusions of the cost benefit analysis along with tables, figures, images, and statistical analyses as needed to support the findings. Final draft of the proposed additions to the UC IPM website will be provided 20 business days prior to publishing.	November 30, 2025
5	5.2 Submission of presentation materials 20 business days prior to each meeting.	April 30, 2024; April 30, 2025
5	5.3 Final drafts of articles to be published in trade journals will be submitted 20 business days prior to publishing date.	December 15, 2025
<b>The following Deliverables are subject to Copyrights, See Terms and Conditions.</b>		

## Task Budget

Objective	Task	Cost
1	1.1 Initial project meeting	\$0
1	1.2 Research plan	\$280
1	1.3 Invoices	\$0
1	1.4 Quarterly project update meetings	\$120
1	1.5 Quarterly project reports	\$700
1	1.6 Annual reports	\$400
1	1.7 Final report draft	\$500
1	1.8 Final report	\$100
1	1.9 DPR presentation	\$200
2	2.1 Greenhouse study to assess the effects of three different foliar-sprayed antimicrobial compounds on <i>Xylella fastidiosa</i> in grapevine	\$52,325
2	2.2 Greenhouse study to assess the effects of soil-introduced xylem colonizing endophytes that secrete antimicrobial compounds on <i>Xylella fastidiosa</i> in grapevine	\$52,350
2	2.3 Field study to assess the effects of foliar-sprayed antimicrobial compounds and soil-introduced xylem colonizing endophytes on <i>Xylella fastidiosa</i> in naturally infected field grapevines	\$73,325
3	3.1 Assess the effects of understory plantings and soft scale on parasitoid wasp and glassy-winged sharpshooter populations in citrus plots	\$84,070
3	3.2 Assess parasitoid wasp and glassy-winged sharpshooter populations in citrus groves and adjacent windbreaks after hand release and drone release	\$94,685
4	4.1 Assess glassy-winged sharpshooter populations in citrus groves and adjacent vineyards and Pierce's disease incidence and spread after simultaneous parasitoid wasp releases and grapevine treatment	\$177,528
5	5.1 Conduct a cost-benefit analysis to compare the economic feasibility of using microbe-associated prophylactic treatments and parasitoid wasps to manage Pierce's disease in vineyards with current control methods	\$10,000
5	5.2 Outreach: Present most recent results at Citrus and Grape Grower annual meetings.	\$3,500

*\*Sample Scope of Work and Budget\**

<b>Objective</b>	<b>Task</b>	<b>Cost</b>
5	5.3 Publish results of the project in trade journals	\$3,500
<b>Project Total Direct Costs</b>		<b>\$553,583</b>

**Principal Investigator:** Mike Rowbes  
**Organization:** University of California

**COMPOSITE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD: 07/01/2023 to 12/31/2025**

<b>BUDGET CATEGORY</b>	<b>Year 1 7/1/2023 – 6/30/2024</b>	<b>Year 2 7/1/2024 – 6/30/2025</b>	<b>Year 3 7/1/2025 – 12/31/2025</b>	<b>TOTAL</b>
PERSONNEL: <i>Salary and fringe benefits.</i>	\$68,000	\$70,392	\$36,439	\$174,831
TRAVEL	\$0	\$3,848	\$4,106	\$7,954
MATERIALS & SUPPLIES	\$3,430	\$5,615	\$19,400	\$28,445
EQUIPMENT	\$68,500	\$0	\$0	\$68,500
RENT	\$5,000	\$0	\$0	\$5,000
SUBCONTRACTOR #1 - USDA-ARS <i>(IDC allowed up to 25% on first \$25,000)</i>	\$0	\$52,201	\$27,471	\$79,672
SUBCONTRACTOR #2 - AgAeronauticals Inc. <i>(IDC allowed up to 25% on first \$25,000)</i>	\$0	\$10,616	\$20,631	\$31,247
SUBRECIPIENT #1 - (UC/CSUS applicants only) <i>(UC/CSUS applicants only, IDC not allowed)</i>	\$0	\$74,722	\$42,576	\$117,298
OTHER DIRECT COSTS (ODC) <i>Subject to IDC Calc</i>				
ODC #1: Tuition and Fees <b>N</b>	\$16,233	\$17,856	\$6,547	\$40,636
ODC #2 <b>Y</b>	\$0	\$0	\$0	\$0
ODC #3 <b>Y</b>	\$0	\$0	\$0	\$0
ODC #4 <b>Y</b>	\$0	\$0	\$0	\$0
ODC #5 <b>Y</b>	\$0	\$0	\$0	\$0
<b>TOTAL DIRECT COSTS</b>	<b>\$161,163</b>	<b>\$235,250</b>	<b>\$157,170</b>	<b>\$553,583</b>
Indirect (F&A) Costs				
<b>Rate</b>	<b>F&amp;A Base</b>			
<b>25%</b>	<b>MTDC *</b>	\$76,430	\$115,471	\$74,329
		<b>\$19,108</b>	<b>\$28,868</b>	<b>\$18,582</b>
<b>TOTAL COSTS PER YEAR</b>	<b>\$180,271</b>	<b>\$264,118</b>	<b>\$175,752</b>	
<b>TOTAL COSTS FOR PROPOSED PROJECT PERIOD</b>				<b>\$620,141</b>

\* MTDC = Modified Total Direct Cost

**JUSTIFICATION:** *Follow the budget justification instructions.*

**Budget Flexibility (SEE TERMS AND CONDITIONS)**

Prior approval required for budget changes between approved budget categories above the thresholds identified.

**% 10.00% Or Amount \$10,000**

**Principal Investigator:** Mike Rowbes  
**Organization:** University of California

**Anticipated Program Income (when applicable): 07/01/2023 – 12/31/2025**

	<b>Year 1 7/1/2023 – 6/30/2024</b>	<b>Year 2 7/1/2024 – 6/30/2025</b>	<b>Year 3 7/1/2025 – 12/31/2025</b>	<b>TOTAL</b>
<b>ANTICIPATED PROGRAM INCOME</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

*Anticipated Program Income is an estimate of gross income earned by the University that is directly generated by a supported activity and earned only as a result of the State funded project, and this fact is known by the University at time of proposal. Anticipated Program Income is an estimate of potential income and not a guarantee of income to support the project.*

*This will only be incorporated in the Agreement when Program Income is anticipated and proposed. Program Income is subject to the Terms and Conditions.*

If known, provide source(s) of Program Income:

<b>Source</b>	<b>Estimated Amount</b>

## Budget Justification

*The Budget Justification will include the following items in this format. Identify and report in-kind contributions of personnel time, equipment, facilities, and materials by team members. Complete a separate Budget Justification (see below) for each subawardee (UC/CSUS applicants only) or subcontractor.*

### PERSONNEL

**Name.** *Starting with the Principal Investigator, list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as “to-be-determined” (TBD).*

Mike Rowbes, PI  
Pete Reedisch  
Anne Alaciss  
Undergraduate #1 (TBD)  
Undergraduate #2 (TBD)

**Role on Project.** *For all personnel by name, position, function, and a percentage level of effort (as appropriate), including “to-be-determined” (TBD) positions.*

Mike Rowbes, Assistant Professor in Plant Pathology, University of California, 3% effort *in-kind, no salary requested*. Will serve as the PI during the entire project period, and will develop experimental designs, coordinate collaboration with subcontractors and subrecipients, and provide academic oversight.

Pete Reedisch, Graduate Student Researcher, University of California, 49% effort. Will conduct all greenhouse experiments, participate in all field experiments, and will be responsible for all sample and data acquisition and management.

Anne Alaciss, Postdoctoral Scholar, University of California, 20% effort. Will conduct all data analysis including statistical modeling and interpretation of results.

Undergraduate Research Assistants #1 and #2 (TBD), University of California, each 25% effort. URAs will participate in greenhouse and lab work and help in sample collection and data acquisition.

**Salary.** *In the table below, list the following information for each paid staff member: base salary, any annual increase percentage, any merit increase percentage, level of effort by percentage, and total salary per year. In parentheses below each yearly salary, indicate how many months per year each staff member will spend working on the project. Add additional tables as needed.*



*\*Sample Scope of Work and Budget\**

<b>Salary – Pete Reedisch</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Base Salary	\$68,986 (12 months)	\$71,056 (12 months)	\$73,187 (6 months)
Annual Increase	N/A	0%	0%
Merit Increase	N/A	3%	3%
Effort	49%	49%	49%
<b>Total Salary requested</b>	<b>\$33,803</b>	<b>\$34,817</b>	<b>\$17,931</b>

<b>Salary – Anne Alaciss</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Base Salary	\$72,549 (12 months)	\$76,176 (12 months)	\$79,985 (6 months)
Annual Increase	N/A	0%	0%
Merit Increase	N/A	5%	5%
Effort	20%	20%	20%
<b>Total Salary requested</b>	<b>\$14,510</b>	<b>\$15,235</b>	<b>\$7,999</b>

<b>Salary – Undergraduate #1 (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Base Salary	\$31,284 (12 months)	\$32,223 (12 months)	\$33,189 (6 months)
Annual Increase	N/A	3%	3%
Merit Increase	N/A	0%	0%
Effort	25%	25%	25%
<b>Total Salary requested</b>	<b>\$7,821</b>	<b>\$8,056</b>	<b>\$4,149</b>

<b>Salary – Undergraduate #2 (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Base Salary	\$31,284 (12 months)	\$32,223 (12 months)	\$33,189 (6 months)
Annual Increase	N/A	3%	3%
Merit Increase	N/A	0%	0%
Effort	25%	25%	25%
<b>Total Salary requested</b>	<b>\$7,821</b>	<b>\$8,056</b>	<b>\$4,149</b>

**Fringe Benefits.**

*In accordance with University or Organizational policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by policy, to estimate the fringe benefit expenses. In the table below, list the following for each paid staff member: percentage rate for calculating fringe benefits, and total fringe benefits per year. Add additional tables as needed.*

<b>Fringe Benefits – Pete Reedisch</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	1.9%	1.9%	1.9%
<b>Total Fringe Benefits requested</b>	<b>\$642</b>	<b>\$662</b>	<b>\$341</b>

<b>Fringe Benefits – Anne Alaciss</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	21.4%	21.4%	21.4%
<b>Total Fringe Benefits requested</b>	<b>\$3,105</b>	<b>\$3,260</b>	<b>\$1,712</b>

<b>Fringe Benefits – Undergraduate #1 (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	1.9%	1.9%	1.9%
<b>Total Fringe Benefits requested</b>	<b>\$149</b>	<b>\$153</b>	<b>\$79</b>

<b>Fringe Benefits – Undergraduate #2 (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	1.9%	1.9%	1.9%
<b>Total Fringe Benefits requested</b>	<b>\$149</b>	<b>\$153</b>	<b>\$79</b>

**Total Personnel Costs**

<b>Personnel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Yearly Salary Totals	\$63,955	\$66,164	\$34,228	\$164,347
Yearly Fringe Benefits Totals	\$4,045	\$4,228	\$2,211	\$10,484
<b>Yearly Personnel Totals</b>	<b>\$68,000</b>	<b>\$70,392</b>	<b>\$36,439</b>	<b>\$174,831</b>

**TRAVEL (SEE TERMS AND CONDITIONS)**

*In the tables below, list the following for each trip: year of travel, destination, duration, names of traveling staff, and purpose. If applicable, include details on airfare (including total passengers, airfare costs per passenger, and total flight costs), rental vehicles (including total rental costs, total fuel costs per gallon, and total rental vehicle costs), and personal/company vehicles (including distance in miles, mileage reimbursement rate, and total vehicle costs), per diem (including number of days, number of staff, and cost per staff per day), and lodging (including number of days, number of staff, and cost per staff per day). Add additional tables as needed.*

**TRIP #1**

Trip Occurs in (select all that apply):       Year 1       Year 2       Year 3

Destination: Central Valley

Duration: 3 days

Staff Names: Mike Rowbes, Pete Reedisch

Purpose: March initial sample and data collection, and participation in the initial drone releases of parasitoid wasps.

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs: Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 330 Mileage reimbursement rate: 0.585	\$193
<b>PER DIEM</b> Number of days: 3 Number of staff: 2 Cost per staff per day: \$62	\$372
<b>LODGING</b> Number of nights: 2 Number of staff: 2 Cost per staff per day: \$98	\$392
Total Cost per Trip	\$957
Number of Trip Occurrences	1
<b>GRAND TOTAL</b>	<b>\$957</b>

**TRIP #2**

Trip Occurs in (select all that apply):       Year 1       Year 2       Year 3

Destination: Central Valley

Duration: 3 days

Staff Names: Pete Reedisich

Purpose: June sample and data collection, and participation in drone releases of parasitoid wasps.

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs:	\$193

Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 330 Mileage reimbursement rate: 0.585	
<b>PER DIEM</b> Number of days: 3 Number of staff: 1 Cost per staff per day: \$62	\$186
<b>LODGING</b> Number of nights: 2 Number of staff: 1 Cost per staff per day: \$98	\$196
Total Cost per Trip	\$575
Number of Trip Occurrences	1
<b>GRAND TOTAL</b>	<b>\$575</b>

**TRIP #3**

Trip Occurs in (select all that apply):

Year 1

Year 2

Year 3

Destination: Central Valley

Duration: 5 days

Staff Names: Pete Reedisch

Purpose: March and June sample and data collection, and participation in drone releases of parasitoid wasps.

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs: Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 330 Mileage reimbursement rate: 0.585	\$193
<b>PER DIEM</b> Number of days: 5 Number of staff: 1 Cost per staff per day: \$62	\$310
<b>LODGING</b> Number of nights: 4	\$392

Number of staff: 1 Cost per staff per day: \$98	
Total Cost per Trip	\$895
Number of Trip Occurrences	2
<b>GRAND TOTAL</b>	<b>\$1,790</b>

**TRIP #4**

Trip Occurs in (select all that apply):       Year 1       Year 2       Year 3

Destination: Central Valley

Duration: 1 day

Staff Names: Pete Reedisch

Purpose: Day trips between March and September to collect samples and data (12 trips per year).

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs: Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 330 Mileage reimbursement rate: 0.585	\$193
<b>PER DIEM</b> Number of days: Number of staff: Cost per staff per day:	\$
<b>LODGING</b> Number of nights: Number of staff: Cost per staff per day:	\$
Total Cost per Trip	\$193
Number of Trip Occurrences	24
<b>GRAND TOTAL</b>	<b>\$4,632</b>

**Total Travel Costs**

<b>Travel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Travel Totals</b>	<b>\$0</b>	<b>\$3,848</b>	<b>\$4,106</b>	<b>\$7,954</b>

**MATERIALS AND SUPPLIES**

*Itemize materials and supplies in separate categories. Include a complete justification of the project’s need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29. List the cost for items and quantity of each item (if known) and list by year. Add additional lines as needed.*

<b>Item</b>	<b>Price per unit</b>	<b>Quantity</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Flags	\$50 / case	1 case of 500	\$0	\$50	\$0
Field Stakes	\$50 / case	1 case of 500	\$0	\$50	\$0
Field Boots	\$120 / pair	1 pair	\$0	\$120	\$0
15 ml Tubes	\$24 / pack	45 packs of 100	\$120	\$240	\$720
Backpack Sprayer	\$150	1	\$150	\$0	\$0
Goggles	\$20	1	\$20	\$0	\$0
Respirator	\$35	1	\$35	\$0	\$0
Rubber Gloves	\$5 / pair	6 pairs	\$10	\$10	\$10
Ethanol	\$36 / gallon	15 gallons	\$180	\$180	\$180
Petri Dishes	\$100 / case	3 cases of 200	\$100	\$100	\$100
Media #1 powder, 500 grams	\$50 / container	1 container	\$50	\$0	\$0

*\*Sample Scope of Work and Budget\**

Media #2 powder, 500 grams	\$25 / container	5 containers	\$25	\$50	\$50
Media #3 powder, 500 grams	\$35 / container	5 containers	\$35	\$70	\$70
Agar, 500 grams	\$20 / container	5 containers	\$20	\$40	\$40
Plant Total DNA Extraction Kit	\$105 / kit	46 kits	\$630	\$1,050	\$3,150
Insect Total DNA Extraction Kit	\$125 / kit	35 kits	\$0	\$0	\$4,375
PCR Reagents Kit	\$55 / kit	81	\$330	\$550	\$3,575
qPCR Reagents Kit	\$110 / kit	46	\$660	\$1,100	\$3,300
10 µl Pipette tips	\$50 / case	28 cases of 10	\$100	\$400	\$900
20 µl Pipette tips	\$50 / case	28 cases of 10	\$100	\$400	\$900
200 µl Pipette tips	\$50 / case	28 cases of 10	\$100	\$400	\$900
1000 µl Pipette tips	\$65 / case	15 cases of 10	\$130	\$260	\$585
10 ml Serological Pipettes	\$60 / case	6 cases of 200	\$120	\$120	\$120
25 ml Serological Pipettes	\$100 / case	6 cases of 200	\$200	\$200	\$200
50 ml Tubes	\$45 / pack	11 packs of 50	\$225	\$135	\$135
Nitrile Gloves	\$9 / box	30 boxes	\$90	\$90	\$90

**Total Materials and Supplies Costs**

<b>Materials and Supplies</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Materials and Supplies Totals</b>	<b>\$3,430</b>	<b>\$5,615</b>	<b>\$19,400</b>	<b>\$28,445</b>



**Justification:** All materials and supplies will be used to conduct greenhouse and field trials, collect plant and insect samples, grow microbes for prophylactic treatments, and extract bacterial DNA.

## EQUIPMENT

List each item of equipment (value greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each. List all equipment purchases by year. Add additional lines as needed.

<b>Equipment</b>	<b>Justification</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Automated DNA Purifier 2500SL	For high-throughput DNA extraction of thousands of field and greenhouse samples prior to PCR.	\$68,500	\$0	\$0

### **Total Equipment Costs**

<b>Equipment</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Equipment Cost Totals</b>	<b>\$68,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$68,500</b>

## RENT

If the Scope of Work will be performed in a facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award. List all facilities rented each year and any projected yearly increase. Add additional lines as needed.

<b>Rent</b>	<b>Justification</b>	<b>Annual Increase</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Greenhouse 1 – Glasshouse Growers Inc.	To conduct grapevine Pierce’s Disease assays for Task 2.1.	N/A	\$2,500	\$0	\$0
Greenhouse 2 – Glasshouse Growers Inc.	To conduct grapevine Pierce’s Disease assays for Task 2.2.	N/A	\$2,500	\$0	\$0

**Total Rental Costs**

<b>Rent</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Rental Cost Totals</b>	<b>\$5,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,000</b>

**SUBCONTRACTOR COSTS**

*Each subcontractor must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subcontractor listed in the application.*

<b>Subcontractor Costs</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Ben Effischal, USDA-ARS	\$0	\$52,201	\$27,471	\$79,672
AgAeronauticals Inc.	\$0	\$10,616	\$20,631	\$31,247

**SUBAWARDEE (CONSORTIUM/SUBRECIPIENT) COSTS**

*Each participating consortium organization must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subawardee listed in the application.*

<b>Subawardee/Subrecipient Costs</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Akar Radge, UCANR	\$0	\$74,722	\$42,576	\$117,298

**OTHER DIRECT COSTS (ODC)**

*Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology. List all ODC by year. Add additional lines as needed.*

<b>Other Direct Cost</b>	<b>Category</b>	<b>Justification</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
ODC #1	Tuition and Fees	Contributes to the compensation package for work conducted by Pete Reedisch to fulfill grant goals.	\$16,233	\$17,856	\$6,547

**Total Other Direct Costs**

<b>Other Direct Costs</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Other Direct Costs Totals</b>	<b>\$16,233</b>	<b>\$17,856</b>	<b>\$6,547</b>	<b>\$40,636</b>

**INDIRECT (F&A) COSTS (SEE TERMS AND CONDITIONS)**

*Indirect costs are calculated in accordance with the budgeted indirect cost rate (Limit 25% maximum).*

**Total Indirect Costs: \$66,558**

## Subcontractor/Subawardee Budgets (when applicable)

**Subcontractor/Subawardee:** Akar Radge, UCANR

**Principal Investigator:** Mike Rowbes

**Organization:** University of California

### SUBCONTRACTOR/SUBAWARDEE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD: 07/01/2023 to 12/31/2025

BUDGET CATEGORY	Year 1 7/1/2023 – 6/30/2024	Year 2 7/1/2024 – 6/30/2025	Year 3 7/1/2025 – 12/31/2025	TOTAL
PERSONNEL: <i>Salary and fringe benefits.</i>	\$0	\$59,778	\$31,061	\$90,839
TRAVEL	\$0	\$0	\$0	\$0
MATERIALS & SUPPLIES	\$0	\$0	\$0	\$0
EQUIPMENT	\$0	\$0	\$0	\$0
RENT	\$0	\$0	\$0	\$0
SUBCONTRACTOR #1 <i>(IDC allowed up to 25% on first \$25,000)</i>	\$0	\$0	\$0	\$0
SUBRECIPIENT (UC/CSUS applicants only) <i>(UC/CSUS applicants only, IDC not allowed)</i>	\$0	\$0	\$0	\$0
OTHER DIRECT COSTS (ODC) <span style="float:right"><i>Subject to IDC Calc</i></span>				
ODC #1: Tractor and tow-behind sprayer rental <span style="float:right"><b>Y</b></span>	\$0	\$0	\$3,000	\$3,000
ODC #2 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #3 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #4 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #5 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
<b>TOTAL DIRECT COSTS</b>	<b>\$0</b>	<b>\$59,778</b>	<b>\$34,061</b>	<b>\$93,839</b>
Indirect (F&A) Costs <span style="float:right"><b>F&amp;A Base MTDC *</b></span>				
<b>Rate</b>	\$0	\$59,778	\$34,061	\$93,839
<b>25%</b>	<b>\$0</b>	<b>\$14,944</b>	<b>\$8,515</b>	<b>\$23,459</b>
<b>TOTAL COSTS PER YEAR</b>	<b>\$0</b>	<b>\$74,722</b>	<b>\$42,576</b>	
<b>TOTAL COSTS FOR PROPOSED PROJECT PERIOD</b>				<b>\$117,298</b>

\* MTDC = Modified Total Direct Cost

**JUSTIFICATION:** *Follow the budget justification instructions.*

**Budget Flexibility (SEE TERMS AND CONDITIONS)**

Prior approval required for budget changes between approved budget categories above the thresholds identified.

**%      10.00%          Or      Amount          \$10,000**

## Subcontractor/Subawardee Budget Justification (when applicable)

*The Budget Justification will include the following items in this format. Identify and report in-kind contributions of personnel time, equipment, facilities, and materials by team members. Complete a separate Budget Justification (see below) for each subawardee (UC/CSUS applicants only) or subcontractor.*

### PERSONNEL

**Name.** *Starting with the Principal Investigator, list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as “to-be-determined” (TBD).*

Akar Radge, Co-PI  
Walt Zindafeld  
Junior Specialist (TBD)

**Role on Project.** *For all personnel by name, position, function, and a percentage level of effort (as appropriate), including “to-be-determined” (TBD) positions.*

Akar Radge, Viticulture and Tree Fruit Advisor, Central Valley Counties, University of California Cooperative Extension, 5% effort *in-kind, no salary requested.* Will serve as a co-PI and will interface with growers to locate and establish field sites, assist with project design, supervise all field work, and extend results to stakeholders.

Walt Zindafeld, Staff Research Associate, University of California Cooperative Extension, 30% effort in Years 2 and 3. Will lead and conduct all field experiments and assist in sample collection.

Junior Specialist (TBD), University of California Cooperative Extension, 50% effort in Years 2 and 3. Will assist the Staff Research Associate in all field experiments and sample collection.

**Salary.** *In the table below, list the following information for each paid staff member: base salary, any annual increase percentage, any merit increase percentage, level of effort by percentage, and total salary per year. In parentheses below each yearly salary, indicate how many months per year each staff member will spend working on the project. Add additional tables as needed.*

Salary – Walt Zindafeld	Year 1 07/01/2023 – 06/30/2024	Year 2 07/01/2024 – 06/30/2025	Year 3 07/01/2025 – 12/31/2025
Base Salary	\$0	\$68,235 (12 months)	\$70,282 (6 months)
Annual Increase	N/A	N/A	0%

*\*Sample Scope of Work and Budget\**

Merit Increase	N/A	N/A	3%
Effort	0%	30%	30%
<b>Total Salary requested</b>	\$0	\$20,471	\$10,542

<b>Salary – Junior Specialist (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Base Salary	\$0	\$41,284 (12 months)	\$42,523 (6 months)
Annual Increase	N/A	N/A	0%
Merit Increase	N/A	N/A	3%
Effort	0%	50%	50%
<b>Total Salary requested</b>	\$0	\$20,642	\$10,631

**Fringe Benefits.**

*In accordance with University or Organizational policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by policy, to estimate the fringe benefit expenses. In the table below, list the following for each paid staff member: percentage rate for calculating fringe benefits, and total fringe benefits per year. Add additional tables as needed.*

<b>Fringe Benefits – Walt Zindafeld</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	0%	45.4%	46.7%
<b>Total Fringe Benefits requested</b>	\$0	\$9,294	\$4,923

<b>Fringe Benefits – Junior Specialist (TBD)</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	0%	45.4%	46.7%
<b>Total Fringe Benefits requested</b>	\$0	\$9,371	\$4,965

**Total Personnel Costs**

<b>Personnel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Yearly Salary Totals	\$0	\$41,113	\$21,173	\$62,286
Yearly Fringe Benefits Totals	\$0	\$18,665	\$9,888	\$28,553
<b>Yearly Personnel Totals</b>	<b>\$0</b>	<b>\$59,778</b>	<b>\$31,061</b>	<b>\$90,839</b>

**TRAVEL (SEE TERMS AND CONDITIONS)**

*In the tables below, list the following for each trip: year of travel, destination, duration, names of traveling staff, and purpose. If applicable, include details on airfare (including total passengers, airfare costs per passenger, and total flight costs), rental vehicles (including total rental costs, total fuel costs per gallon, and total rental vehicle costs), and personal/company vehicles (including distance in miles, mileage reimbursement rate, and total vehicle costs), per diem (including number of days, number of staff, and cost per staff per day), and lodging (including number of days, number of staff, and cost per staff per day). Add additional tables as needed.*

N/A

**MATERIALS AND SUPPLIES**

*Itemize materials and supplies in separate categories. Include a complete justification of the project’s need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29. List the cost for items and quantity of each item (if known) and list by year. Add additional lines as needed.*

N/A

**EQUIPMENT**

*List each item of equipment (value greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each. List all equipment purchases by year. Add additional lines as needed.*

N/A

**RENT**

*If the Scope of Work will be performed in a facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award. List all facilities rented each year and any projected yearly increase. Add additional lines as needed.*

N/A



**SUBCONTRACTOR COSTS**

*Each subcontractor must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subcontractor listed in the application.*

N/A

**SUBAWARDEE (CONSORTIUM/SUBRECIPIENT) COSTS**

*Each participating consortium organization must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subawardee listed in the application.*

N/A

**OTHER DIRECT COSTS (ODC)**

*Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology. List all ODC by year. Add additional lines as needed.*

Other Direct Cost	Category	Justification	Year 1 07/01/2023 – 06/30/2024	Year 2 07/01/2024 – 06/30/2025	Year 3 07/01/2025 – 12/31/2025
ODC #1	Equipment Rental	30-horsepower tractor and a tow-behind sprayer to apply the prophylactic treatment in vineyards for Task 4.1.	\$0	\$0	\$3,000

**Total Other Direct Costs**

Other Direct Costs	Year 1 07/01/2023 – 06/30/2024	Year 2 07/01/2024 – 06/30/2025	Year 3 07/01/2025 – 12/31/2025	Total
<b>Yearly Other Direct Costs Totals</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,000</b>	<b>\$3,000</b>

**INDIRECT (F&A) COSTS (SEE TERMS AND CONDITIONS)**

*Indirect costs are calculated in accordance with the budgeted indirect cost rate (Limit 25% maximum).*

Indirect Costs are calculated at 25% of the MTDC.

**Total Indirect Costs: \$23,459**

## Subcontractor/Subawardee Budgets (when applicable)

**Subcontractor/Subawardee:** Ben Efficshal, USDA-ARS

**Principal Investigator:** Mike Rowbes

**Organization:** University of California

### SUBCONTRACTOR/SUBAWARDEE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD: 07/01/2023 to 12/31/2025

BUDGET CATEGORY	Year 1 7/1/2023 – 6/30/2024	Year 2 7/1/2024 – 6/30/2025	Year 3 7/1/2025 – 12/31/2025	TOTAL
PERSONNEL: <i>Salary and fringe benefits.</i>	\$0	\$46,681	\$24,274	\$70,955
TRAVEL	\$0	\$0	\$0	\$0
MATERIALS & SUPPLIES	\$0	\$300	\$450	\$750
EQUIPMENT	\$0	\$0	\$0	\$0
RENT	\$0	\$0	\$0	\$0
SUBCONTRACTOR #1 <i>(IDC allowed up to 25% on first \$25,000)</i>	\$0	\$0	\$0	\$0
SUBRECIPIENT (UC/CSUS applicants only) <i>(UC/CSUS applicants only, IDC not allowed)</i>	\$0	\$0	\$0	\$0
OTHER DIRECT COSTS (ODC) <i>Subject to IDC Calc</i>				
ODC #1 <span style="float:right">Y</span>	\$0	\$0	\$0	\$0
ODC #2 <span style="float:right">Y</span>	\$0	\$0	\$0	\$0
ODC #3 <span style="float:right">Y</span>	\$0	\$0	\$0	\$0
ODC #4 <span style="float:right">Y</span>	\$0	\$0	\$0	\$0
ODC #5 <span style="float:right">Y</span>	\$0	\$0	\$0	\$0
<b>TOTAL DIRECT COSTS</b>	<b>\$0</b>	<b>\$46,981</b>	<b>\$24,724</b>	<b>\$71,705</b>
Indirect (F&A) Costs				
<i>Rate</i> 11.111%	\$0	\$46,981	\$24,724	\$71,705
<i>F&amp;A Base MTDC *</i>	\$0	\$5,220	\$2,747	\$7,967
<b>TOTAL COSTS PER YEAR</b>	<b>\$0</b>	<b>\$52,201</b>	<b>\$27,471</b>	
<b>TOTAL COSTS FOR PROPOSED PROJECT PERIOD</b>				<b>\$79,672</b>

\* MTDC = Modified Total Direct Cost

**JUSTIFICATION:** *Follow the budget justification instructions.*

### Budget Flexibility (SEE TERMS AND CONDITIONS)

Prior approval required for budget changes between approved budget categories above the thresholds identified.

% **10.00%** *Or* **Amount** \$10,000

## Subcontractor/Subawardee Budget Justification (when applicable)

*The Budget Justification will include the following items in this format. Identify and report in-kind contributions of personnel time, equipment, facilities, and materials by team members. Complete a separate Budget Justification (see below) for each subawardee (UC/CSUS applicants only) or subcontractor.*

### PERSONNEL

**Name.** *Starting with the Principal Investigator, list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as “to-be-determined” (TBD).*

Ben Effischal Co-PI  
Karen Ferbugges

**Role on Project.** *For all personnel by name, position, function, and a percentage level of effort (as appropriate), including “to-be-determined” (TBD) positions.*

Ben Effischal, Research Entomologist, USDA-ARS, 3% effort *in-kind*, no salary requested. Will serve as a co-PI for the duration of the project. Will provide parasitoid wasps from lab-reared colonies, supervise all insect field experiments, assist in project design, and provide technical expertise during sample collection.

Karen Ferbugges, Biological Science Technician, USDA-ARS, 50% effort in Years 2 and 3. Will maintain all lab-reared parasitoid wasp colonies, prepare parasitoid wasps for transport to and release within field sites, and participate in sample collection.

**Salary.** *In the table below, list the following information for each paid staff member: base salary, any annual increase percentage, any merit increase percentage, level of effort by percentage, and total salary per year. In parentheses below each yearly salary, indicate how many months per year each staff member will spend working on the project. Add additional tables as needed.*

Salary – Karen Ferbugges	Year 1 07/01/2023 – 06/30/2024	Year 2 07/01/2024 – 06/30/2025	Year 3 07/01/2025 – 12/31/2025
Base Salary	\$0	\$66,214 (12 months)	\$68,863 (6 months)
Annual Increase	N/A	N/A	0%
Merit Increase	N/A	N/A	4%
Effort	0%	50%	50%

<b>Total Salary requested</b>	<b>\$0</b>	<b>\$33,107</b>	<b>\$17,216</b>
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**Fringe Benefits.**

*In accordance with University or Organizational policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by policy, to estimate the fringe benefit expenses. In the table below, list the following for each paid staff member: percentage rate for calculating fringe benefits, and total fringe benefits per year. Add additional tables as needed.*

<b>Fringe Benefits – Karen Ferbugges</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
Fringe Rate	0%	41%	41%
<b>Total Fringe Benefits requested</b>	<b>\$0</b>	<b>\$13,574</b>	<b>\$7,058</b>

**Total Personnel Costs**

<b>Personnel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Yearly Salary Totals	\$0	\$33,107	\$17,216	\$50,323
Yearly Fringe Benefits Totals	\$0	\$13,574	\$7,058	\$20,632
<b>Yearly Personnel Totals</b>	<b>\$0</b>	<b>\$46,681</b>	<b>\$24,274</b>	<b>\$70,955</b>

**TRAVEL (SEE TERMS AND CONDITIONS)**

*In the tables below, list the following for each trip: year of travel, destination, duration, names of traveling staff, and purpose. If applicable, include details on airfare (including total passengers, airfare costs per passenger, and total flight costs), rental vehicles (including total rental costs, total fuel costs per gallon, and total rental vehicle costs), and personal/company vehicles (including distance in miles, mileage reimbursement rate, and total vehicle costs), per diem (including number of days, number of staff, and cost per staff per day), and lodging (including number of days, number of staff, and cost per staff per day). Add additional tables as needed.*

N/A

**MATERIALS AND SUPPLIES**

*Itemize materials and supplies in separate categories. Include a complete justification of the project’s need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29. List the cost for items and quantity of each item (if known) and list by year. Add additional lines as needed.*

<b>Item</b>	<b>Price per unit</b>	<b>Quantity</b>	<b>Year 1 07/01/2023 – 06/30/2024</b>	<b>Year 2 07/01/2024 – 06/30/2025</b>	<b>Year 3 07/01/2025 – 12/31/2025</b>
Collection Vials	\$150 / case	5 cases of 1000	\$0	\$300	\$450

**Total Materials and Supplies Costs**

<b>Materials and Supplies</b>	<b>Year 1 07/01/2023 – 06/30/2024</b>	<b>Year 2 07/01/2024 – 06/30/2025</b>	<b>Year 3 07/01/2025 – 12/31/2025</b>	<b>Total</b>
<b>Yearly Materials and Supplies Totals</b>	<b>\$0</b>	<b>\$300</b>	<b>\$450</b>	<b>\$750</b>

**EQUIPMENT**

*List each item of equipment (value greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each. List all equipment purchases by year. Add additional lines as needed.*

N/A

**RENT**

*If the Scope of Work will be performed in a facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award. List all facilities rented each year and any projected yearly increase. Add additional lines as needed.*

N/A

**SUBCONTRACTOR COSTS**

*Each subcontractor must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subcontractor listed in the application.*

N/A

### **SUBAWARDEE (CONSORTIUM/SUBRECIPIENT) COSTS**

*Each participating consortium organization must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subawardee listed in the application.*

N/A

### **OTHER DIRECT COSTS (ODC)**

*Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology. List all ODC by year. Add additional lines as needed.*

N/A

### **INDIRECT (F&A) COSTS (SEE TERMS AND CONDITIONS)**

*Indirect costs are calculated in accordance with the budgeted indirect cost rate (Limit 25% maximum).*

Indirect Costs are calculated at 11.111% of the MTDC.

**Total Indirect Costs: \$7,967**

## Subcontractor/Subawardee Budgets (when applicable)

**Subcontractor/Subawardee:** AgAeronauticals Inc.

**Principal Investigator:** Mike Rowbes

**Organization:** University of California

### SUBCONTRACTOR/SUBAWARDEE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD: 07/01/2023 to 12/31/2025

BUDGET CATEGORY	Year 1 7/1/2023 – 6/30/2024	Year 2 7/1/2024 – 6/30/2025	Year 3 7/1/2025 – 12/31/2025	TOTAL
PERSONNEL: <i>Salary and fringe benefits.</i>	\$0	\$4,349	\$8,697	\$13,046
TRAVEL	\$0	\$1,744	\$3,008	\$4,752
MATERIALS & SUPPLIES	\$0	\$0	\$0	\$0
EQUIPMENT	\$0	\$0	\$0	\$0
RENT	\$0	\$0	\$0	\$0
SUBCONTRACTOR #1 <i>(IDC allowed up to 25% on first \$25,000)</i>	\$0	\$0	\$0	\$0
SUBRECIPIENT (UC/CSUS applicants only) <i>(UC/CSUS applicants only, IDC not allowed)</i>	\$0	\$0	\$0	\$0
OTHER DIRECT COSTS (ODC) <span style="float:right"><i>Subject to IDC Calc</i></span>				
ODC #1: Drone Operations <span style="float:right"><b>Y</b></span>	\$0	\$2,400	\$4,800	\$7,200
ODC #2 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #3 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #4 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
ODC #5 <span style="float:right"><b>Y</b></span>	\$0	\$0	\$0	\$0
<b>TOTAL DIRECT COSTS</b>	<b>\$0</b>	<b>\$8,493</b>	<b>\$16,505</b>	<b>\$24,998</b>
Indirect (F&A) Costs				
<b>Rate</b>	\$0	\$8,493	\$16,505	\$24,998
<b>25%</b>	<b>\$0</b>	<b>\$2,123</b>	<b>\$4,126</b>	<b>\$6,249</b>
<b>TOTAL COSTS PER YEAR</b>	<b>\$0</b>	<b>\$10,616</b>	<b>\$20,631</b>	
<b>TOTAL COSTS FOR PROPOSED PROJECT PERIOD</b>				<b>\$31,247</b>

\* MTDC = Modified Total Direct Cost

**JUSTIFICATION:** *Follow the budget justification instructions.*

**Budget Flexibility (SEE TERMS AND CONDITIONS)**

Prior approval required for budget changes between approved budget categories above the thresholds identified.

**%      10.00%      Or      Amount      \$10,000**



## Subcontractor/Subawardee Budget Justification (when applicable)

The Budget Justification will include the following items in this format. Identify and report in-kind contributions of personnel time, equipment, facilities, and materials by team members. Complete a separate Budget Justification (see below) for each subawardee (UC/CSUS applicants only) or subcontractor.

### PERSONNEL

**Name.** Starting with the Principal Investigator, list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as “to-be-determined” (TBD).

Ava Aeter  
Emma McCannick

**Role on Project.** For all personnel by name, position, function, and a percentage level of effort (as appropriate), including “to-be-determined”(TBD) positions.

Ava Aeter, Drone Operator, AgAeronauticals Inc, 1.5% effort in Year 2, 6% effort in Year 3. Fully licensed and trained drone operator. Will create flight plans and conduct all drone releases of parasitoid wasps.

Emma McCannick, Drone Technician, AgAeronauticals Inc, 1.5% effort in Year 2, 6% effort in Year 3. Will conduct flight support operations including drone and flight equipment set up, pre-flight diagnostics, battery recharging and loading and unloading of payloads, and will perform any on-site maintenance.

**Salary.** In the table below, list the following information for each paid staff member: base salary, any annual increase percentage, any merit increase percentage, level of effort by percentage, and total salary per year. In parentheses below each yearly salary, indicate how many months per year each staff member will spend working on the project. Add additional tables as needed.

Salary – Ava Aeter	Year 1 07/01/2023 – 06/30/2024	Year 2 07/01/2024 – 06/30/2025	Year 3 07/01/2025 – 12/31/2025
Base Salary	\$0	\$125,000	\$125,000
Annual Increase	N/A	N/A	0%
Merit Increase	N/A	N/A	0%
Effort	0%	1.5%	6%

<b>Total Salary requested</b>	<b>\$0</b>	<b>\$1,875</b>	<b>\$3,750</b>
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<b>Salary – Emma McCannick</b>	<b>Year 1 07/01/2023 – 06/30/2024</b>	<b>Year 2 07/01/2024 – 06/30/2025</b>	<b>Year 3 07/01/2025 – 12/31/2025</b>
Base Salary	\$0	\$98,000	\$98,000
Annual Increase	N/A	N/A	0%
Merit Increase	N/A	N/A	0%
Effort	0%	1.5%	6%
<b>Total Salary requested</b>	<b>\$0</b>	<b>\$1,470</b>	<b>\$2,940</b>

**Fringe Benefits.**

*In accordance with University or Organizational policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by policy, to estimate the fringe benefit expenses. In the table below, list the following for each paid staff member: percentage rate for calculating fringe benefits, and total fringe benefits per year. Add additional tables as needed.*

<b>Fringe Benefits – Ava Aeter</b>	<b>Year 1 07/01/2023 – 06/30/2024</b>	<b>Year 2 07/01/2024 – 06/30/2025</b>	<b>Year 3 07/01/2025 – 12/31/2025</b>
Fringe Rate	0%	30%	30%
<b>Total Fringe Benefits requested</b>	<b>\$0</b>	<b>\$563</b>	<b>\$1,125</b>

<b>Fringe Benefits – Emma McCannick</b>	<b>Year 1 07/01/2023 – 06/30/2024</b>	<b>Year 2 07/01/2024 – 06/30/2025</b>	<b>Year 3 07/01/2025 – 12/31/2025</b>
Fringe Rate	0%	30%	30%
<b>Total Fringe Benefits requested</b>	<b>\$0</b>	<b>\$441</b>	<b>\$882</b>

**Total Personnel Costs**

<b>Personnel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
Yearly Salary Totals	\$0	\$3,345	\$6,690	\$10,035
Yearly Fringe Benefits Totals	\$0	\$1,004	\$2,007	\$3,011
<b>Yearly Personnel Totals</b>	<b>\$0</b>	<b>\$4,349</b>	<b>\$8,697</b>	<b>\$13,046</b>

**TRAVEL (SEE TERMS AND CONDITIONS)**

*In the tables below, list the following for each trip: year of travel, destination, duration, names of traveling staff, and purpose. If applicable, include details on airfare (including total passengers, airfare costs per passenger, and total flight costs), rental vehicles (including total rental costs, total fuel costs per gallon, and total rental vehicle costs), and personal/company vehicles (including distance in miles, mileage reimbursement rate, and total vehicle costs), per diem (including number of days, number of staff, and cost per staff per day), and lodging (including number of days, number of staff, and cost per staff per day). Add additional tables as needed.*

**TRIP #1**

Trip Occurs in (select all that apply):       Year 1       Year 2       Year 3

Destination: Central Valley

Duration: 2 days

Staff Names: Ava Aeter, Emma McCannick

Purpose: March and June drone releases of parasitoid wasps.

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs: Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 410 Mileage reimbursement rate: 0.585	\$240
<b>PER DIEM</b> Number of days: 2	\$228

Number of staff: 2 Cost per staff per day: \$57	
<b>LODGING</b> Number of nights: 2 Number of staff: 2 Cost per staff per day: \$101	\$404
Total Cost per Trip	\$872
Number of Trip Occurrences	2
<b>GRAND TOTAL</b>	<b>\$1,744</b>

**TRIP #2**

Trip Occurs in (select all that apply):       Year 1       Year 2       Year 3  
 Destination: Central Valley  
 Duration: 4 days  
 Staff Names: Ava Aeter, Emma McCannick  
 Purpose: March and June drone releases of parasitoid wasps.

<b>TRAVEL EXPENSES</b>	<b>TOTAL</b>
<b>TRAVEL</b> (select all that apply) <input type="checkbox"/> FLIGHT Total passengers: Airfare per passenger: Total flight costs: <input type="checkbox"/> RENTAL VEHICLE Total rental costs: Total fuel costs per gallon: <input checked="" type="checkbox"/> PERSONAL/COMPANY VEHICLE Distance (miles): 410 Mileage reimbursement rate: 0.585	\$240
<b>PER DIEM</b> Number of days: 4 Number of staff: 2 Cost per staff per day: \$57	\$456
<b>LODGING</b> Number of nights: 4 Number of staff: 2 Cost per staff per day: \$101	\$808
Total Cost per Trip	\$1,504
Number of Trip Occurrences	2
<b>GRAND TOTAL</b>	<b>\$3,008</b>

**Total Travel Costs**

<b>Travel Expenses</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Travel Totals</b>	<b>\$0</b>	<b>\$1,744</b>	<b>\$3,008</b>	<b>\$4,752</b>

**MATERIALS AND SUPPLIES**

*Itemize materials and supplies in separate categories. Include a complete justification of the project’s need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29. List the cost for items and quantity of each item (if known) and list by year. Add additional lines as needed.*

N/A

**EQUIPMENT**

*List each item of equipment (value greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each. List all equipment purchases by year. Add additional lines as needed.*

N/A

**RENT**

*If the Scope of Work will be performed in a facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award. List all facilities rented each year and any projected yearly increase. Add additional lines as needed.*

N/A

**SUBCONTRACTOR COSTS**

*Each subcontractor must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subcontractor listed in the application.*

N/A

**SUBAWARDEE (CONSORTIUM/SUBRECIPIENT) COSTS**

*Each participating consortium organization must submit a separate detailed budget for every year in the project period. Add additional lines as needed. Include a complete justification for the need for any subawardee listed in the application.*

N/A

**OTHER DIRECT COSTS (ODC)**

*Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology. List all ODC by year. Add additional lines as needed.*

<b>Other Direct Cost</b>	<b>Category</b>	<b>Justification</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025
ODC #1	Equipment Operations	Compensation for drone operations, which incorporates the cost of licenses, software, insurance, equipment depreciation, generator fuel consumption, and materials for maintenance.	\$0	\$2,400	\$4,800

**Total Other Direct Costs**

<b>Other Direct Costs</b>	<b>Year 1</b> 07/01/2023 – 06/30/2024	<b>Year 2</b> 07/01/2024 – 06/30/2025	<b>Year 3</b> 07/01/2025 – 12/31/2025	<b>Total</b>
<b>Yearly Other Direct Costs Totals</b>	<b>\$0</b>	<b>\$2,400</b>	<b>\$4,800</b>	<b>\$7,200</b>

**INDIRECT (F&A) COSTS (SEE TERMS AND CONDITIONS)**

*Indirect costs are calculated in accordance with the budgeted indirect cost rate (Limit 25% maximum).*

Indirect Costs are calculated at 25% of the MTDC.

**Total Indirect Costs: \$6,249**